

GRADUATE PROGRAM IN DENTAL PUBLIC HEALTH

Advanced Training Program

The Department of Preventive and Community Dentistry offers an advanced training program in dental public health. The specialty of dental public health is one of the nine dental specialties formally recognized by the American Dental Association. The dental public health training program at the College of Dentistry fulfills all of the educational requirements for dentists wishing to complete the board-certifying examination given by the American Board of Dental Public Health. The graduate program in dental public health offers advanced training for both dentists and dental hygienists who are interested in careers in dental academic settings or dental public health administration. The program requires two years of full-time study and culminates in the awarding of a Master of Science (M.S.) degree in dental public health. The training program places an emphasis on research and includes the preparation and defense of a master's thesis. A minimum of 40 semester hours of coursework is required, including several electives. Most required courses are taken within the College of Dentistry, but some required courses and elective courses are taken through the Colleges of Public Health, Medicine, Education, Business Administration or Liberal Arts.

The program provides instruction in the 10 competency areas defined by the American Board of Dental Public Health. (See *Altman, D. and Mascarenhas, A. K. (2016), New competencies for the 21st century dental public health specialist. Journal of Public Health Dentistry, 76: S18–S28. doi:10.1111/jphd.12190*);

1. Manage oral health programs for population health.
2. Evaluate systems of care that impact oral health.
3. Demonstrate ethical decision-making in the practice of dental public health.
4. Design surveillance systems to measure oral health status and its determinants
5. Communicate on oral and public health issues.
6. Lead collaborations on oral and public health issues.
7. Advocate for public health policy, legislation, and regulations to protect and promote the public's oral health and overall health.
8. Critically appraise evidence to address oral and public health issues for individuals and populations.
9. Conduct research to address oral and public health problems.
10. Integrate the social determinants of health into dental public health practice.

In addition to the areas defined by the American Board of Dental Public Health, this graduate program also can help prepare students for teaching community dentistry and Dental Public Health to predoctoral dental students and dental hygiene students.

Graduates of the M.S. program in dental public health typically take teaching positions in dental schools in departments of community dentistry or dental hygiene, or administrative positions in local or state health departments, public health agencies, foundations, or community health centers.

A unique feature of the graduate program in Dental Public Health at The University of Iowa is its location at the College of Dentistry. This provides students the opportunity to maintain their identity with the dental profession while studying a multidisciplinary subject. The program gives graduate students many opportunities to learn through participation in the teaching, administrative, or research aspects of the department's ongoing programs and projects in cooperation with a variety of community agencies off campus. Among these affiliated programs are the Iowa Department of Health's Oral Health Bureau; Broadlawns Medical Center; Community Health Care, Inc; the Dental Health Center of East Central Iowa; the state dental programs of Illinois and Nebraska; the Indian Health Service; and the University of Iowa Hospitals and Clinics.

Admission Requirements

Applicants must meet the general admission requirements of the Graduate College and those of the department. Departmental requirements include dental or dental hygiene degree, an acceptable score on the Graduate Record Examination (GRE) or Dental Aptitude Test (DAT), and an acceptable cumulative grade-point average (usually 3.0 on a 4.0 scale or its equivalent). The program accepts and trains both dentists and dental hygienists, but the latter are not eligible for board certification. All previous university-level grades are reviewed from transcripts when computing cumulative grade-point averages. Foreign applicants for whom English is not their native

language must pass the Test of English as a Foreign Language (TOEFL) (minimum score of 81 on the Internet-based test, 213 on the computer-based test and 550 on paper-based test).

Curricular Goals

To offer a planned sequence of advanced courses and experiences which will provide graduate students the opportunity to develop comprehensive scientific competence in the field, the program requires a minimum of 40 semester hours of graduate study. This includes a thesis containing original research. Most full-time students should expect to take two years to complete all M.S. degree requirements. The program welcomes part-time students who will naturally take longer.

Objectives

The objectives of this program are to provide students with:

1. Fundamental knowledge of the philosophy, principles, and practices of Dental Public Health.
2. Specialized knowledge and skills for practicing Dental Public Health, including research, administration, and teaching.

Curricular Design

The academic program starts in late June (rather than in the fall). In consultation with the graduate program director, students will develop a plan of study, which includes a set of required courses and appropriate electives. The required courses represent a core set of disciplines and fields of knowledge. These courses cover a wide range of information believed essential for graduates in this field. They include an introduction to Dental Public Health, an introduction to health care organization, epidemiological principles, statistical methods for dental research, research design in dentistry, the principles of oral epidemiology, preventive programs in Dental Public Health, the administration of public dental programs, introduction to the behavioral sciences, financing dental care, teaching methods and evaluation, field experience in Dental Public Health, literature review methods, and research protocol seminar. Also, students are required to take “advanced field experience” and /or “teaching practicum”. These required courses total 31 credit hours. All students will complete and defend a thesis on original research (5 credits), and complete a comprehensive evaluation.

Faculty

*John J. Warren, DDS, MS – Program Director

Daniel J. Caplan, DDS, PhD

Hong Chen, DDS, MS

Xi Chen, DDS, PhD

Howard J. Cowen, DDS, MS

Marsha A. Cunningham, RDH, MA

Peter C. Damiano, DDS, MPH

*Steven M. Levy, DDS, MPH – Program Co-Director

Leonardo Marchini, DDS

Teresa A. Marshall, RD, PhD

*Susan McKernan, DDS, PhD - Program Co-Director

Rohit Nair, BDS

Fang Qian, PhD

*Julie C. Reynolds, DDS, MS

*Diplomate, American Board of Dental Public Health

Main Areas of Research

1. Fluoride ingestion and dental fluorosis/dental caries -- National Institute of Dental and Craniofacial Research grants have long supported "The Iowa Fluoride Study" with current funding from the Carver Charitable Trust and the Delta Dental of Iowa Foundation. This longitudinal study, of over 20 years duration, conducts analyses of fluoride content of different beverages, bottled waters, etc., and all fluoride exposures and ingestion among a birth cohort, with linkage to dental fluorosis and dental caries examination results. Dental caries prevalence and incidence and dental fluorosis are being assessed and related to demographic, genetic, fluoride, and dietary variables. Microbial factors are also being studied concerning dental caries. The United States Department of Agriculture (USDA) supported a multi-year collaborative project to establish epidemiologic methodologies to assess fluoride intake as well as creation of a national fluoride database.

2. Fluoride ingestion and childhood bone development - National Institute of Dental and Craniofacial Research grant funding supports longitudinal assessment of determinants of bone mass and density in children ages 17-19 years. The determinants include intake of fluoride, calcium and other nutrients, physical activity, and genetic markers, as well as parental factors.

3. Health services research -- These projects are related to cost, access, quality of care, or outcomes of dental care. Current project include: influence of third party payment mechanisms on the delivery of dental and other health care services; characteristics affecting dentists' participation in the Medicaid program; trends in Iowa's dental workforce; provider selection criteria for continuing education; longer term comparisons of treatment services; and impact of student extramural program on practitioner willingness to treat traditionally underserved population groups.

4. Dietary research -- Projects include investigation of relationships among dietary factors, oral health, and systemic health. Independent variables include dietary habits (e.g., meal patterns, quantity of sugared beverages) and nutrient intakes (e.g., sugar, vitamins, energy). Outcome variables include dental caries, dental fluorosis, growth, and nutritional status. This research has received support from the Centers for Disease Control and Prevention (CDC) and NIDCR.

6. Early Childhood Caries -- Several Department faculty are members of a collegiate research team focused on Early Childhood Caries (ECC). Recent efforts in this area supported by NIDCR, Carver Foundation, and Delta Dental grants focus on the feasibility of conducting clinical trials of Early Childhood Caries at community-based Women, Infants and Children (WIC) program sites, Head Start and other sites, and caries risk factors among preschool children attending a pediatric dental clinic. Also, microbial, dietary, and genetic factors are being studied. Current projects, including a study of Native-American children, emphasizes factors related to caries in very young children and prevention through dietary, fluoride, and behavioral interventions.

7. Health Literacy -- Projects include communication of treatment plans with College of Dentistry patients, surveys of patients to assess their oral health literacy, and perceptions of oral health literacy issues among dental professionals.

8. Epidemiological study of oral problems in the elderly -- Several longitudinal epidemiological studies of elderly Iowans, in collaboration with faculty from the Center for Health Services Research, have been funded by the National Institute on Aging and the National Institute of Dental and Craniofacial Research.

9. Predicting Caries Risk in Toddlers -- This multi-site project will develop and test an assessment tool to identify caries risk in infants and toddlers in primary medical healthcare settings. The study is focused on under-served children who are at greatest risk for caries.

10. Assessing the Effectiveness of Silver Diamine Fluoride -- This Randomized Clinical Trial (RCT) will evaluate the use of Silver Diamine Fluoride in Arresting Cavitated Caries Lesions. This multi-site clinical trial will test the effectiveness of silver diamine fluoride in arresting and preventing caries among children enrolled in Head Start and other pre-school children.

Program of Study

Required courses:

DPH:5000 Introduction to Dental Public Health - 2 s.h.

Science, philosophy, and practice of Dental Public Health

DPH:5001 Literature Review Methods: Dental Public Health – 2 s.h.

Concepts and process of literature review, particularly in area of student's interest. An emphasis is placed on development of scholarly writing skills.

DPH:5005 Administration of Public Dental Programs - 2 s.h.

Application of general management concepts; includes practical aspects of planning, financing, staffing, implementing, operating, and evaluating Dental Public Health programs at the federal, state, and local levels.

DPH:5006 Preventive Programs in Dental Public Health - 2 s.h.

Public health methods for preventing and controlling major dental conditions, primarily dental caries and periodontal disease; clinical efficacy and cost-effectiveness; students develop a comprehensive preventive oral health plan for a community.

DPH:5007 Health Promotion and Behavior - 2 s.h.

Selected literature in the social and behavioral sciences as it applies to dentistry; critical analysis of research. May substitute 172:101, 172:115 or 172:150 for this requirement.

DPH:5008 Field Experience in Dental Public Health - arr.

Directed field experience of varying length, individually arranged with public and voluntary health agencies according to needs of students and agencies.

DPH:5014 Financing Dental Care - 2 s.h.

Mechanisms of payment for health care service providers, third-party prepayment plans, salaried and public-financed programs. Medicaid and Medicare programs, and national health insurance systems.

DPH:5015 Introduction to Statistical Computing - 1 s.h.

Use of statistical packages on a personal computer for data management and analysis. May substitute 173:160 for this requirement.

DPH:6002 Research Protocol Seminar - 2 s.h.

Development of a master's thesis protocol; students identify a thesis topic, write a detailed review of the relevant literature, and outline potential research methods.

DPH:6004 Principles of Oral Epidemiology - 2 s.h.

General principles of epidemiology, including retrospective, prospective, and cohort study designs; validity and reliability; distribution and determinants of oral diseases - caries, periodontal diseases, oral cancer, malocclusion, fluorosis, and HIV infection.

DPH:6011 Thesis: Dental Public Health - 5 s.h.

Protocol preparation; data collection, analysis, and organization; writing and defense of research.

DPH:6017 Teaching Methods and Evaluation – 2 s.h.

Introduction to philosophies of dental education, teaching methodologies, and evaluation. Emphasis on learning to write educational objectives, writing, and analyzing exam item data.

ORSC:5212 Statistical Methods for Dental Research -3 s.h.

Descriptive methods, elementary probability, distributions, populations and samples, methods for analyzing percentage data and paired and unpaired measurement data, regression, and correlation and analysis of variance.

ORSC:5215 Research Design in Dentistry - 2 s.h.

Types of studies used in dentistry; design validity; sampling methodologies; major descriptive and experimental designs used in dental research; application of statistical tests to these designs.

EPID:4400 Epidemiology I: Principles – 3 s.h.

Epidemiological concepts and methods; design of descriptive and analytic studies, such as aggregate, case series, cross-sectional, case-control, cohort studies; application of epidemiology to public health practice; communication and dissemination of epidemiological findings.

HMP:4000 Introduction to the U.S. Health Care System – 3 s.h.

The U.S. health care system; socioeconomic, political, and environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy, concepts, terminology..

One of the following is also required:**DPH:5009 Advanced Field Experience in Dental Public Health - arr.**

Opportunity to research, develop, and implement programmatic objectives with local, state, national, and/or federal agencies and organizations on an issue that is both relevant to the student and the agency; may require off-site visits to agencies or organizations.

DPH:6018 Clinical Teaching Practicum: Preventive Dentistry – arr.

Practical teaching experience in Preventive Dentistry clinical setting with first year dental students. Emphasis on clinical teaching methods, evaluation, and remediation.

Alternative Courses (to meet Behavioral Sciences Requirement):

One of the following three courses can be taken in the place of DPH:5007

CBH:4105 Introduction to Health Promotion & Disease Prevention – 3 s.h.

Basic concepts, strategies, and methods of health promotion and disease prevention; health promotion in the context of public health, theories and principles that underpin health promotion; overview of policy formation and health promotion planning, implementation, evaluation.

CBH:5220 Health Behavior & Health Education – 3 s.h.

Common theories of health behavior and health education and their application to varied public health problems and settings.

Recommended Courses in Statistics:

One of the following is strongly recommended.

BIOS:5120 Design and Analysis of Biomedical Studies – 3 s.h.

Simple and multiple linear regression and correlation; one- and two-way layout considerations in planning experiments; factorial experiments; multiple comparison techniques; orthogonal contrasts.

PSQF:6243 Intermediate Statistical Methods – 4 s.h.

Foundation for more advanced applied courses; logic of statistical inference, chi-square, and other tests of statistical hypotheses; small sample error theory, interval estimates, introduction to analysis of variance, selected nonparametric methods.

Electives:

Other electives should be selected only after consultation with the graduate program director. Some examples of appropriate courses are listed below.

DPH:6003 Independent Study: Dental Public Health - 2 s.h.

Individual study in student's special interest area, which must be approved by faculty supervisor, study design, procedures, and results are reported in a paper.

ORSC:5250 Current Concepts in Cariology – 2 s.h.

Etiology of dental caries, its pathogenesis and the development of preventive measures based on this knowledge.

Additional coursework in statistics is recommended. Relevant elective courses also may be chosen from those offered by the Department of Preventive and Community Dentistry, other departments in the College of Dentistry, or the University's programs in the Colleges of Public Health, Medicine, Business Administration, Education, Pharmacy, and Liberal Arts.

Application Procedures

All applicants must have taken either the GRE or DAT exam. International applicants must have taken the GRE (or DAT) and TOEFL examinations and apply by November 1 of the year prior to the intended start of the program. U.S./Canadian applicants should take the GRE or DAT and apply by November 1, but later U.S./Canadian applications can sometimes still be considered, usually up to March 1. Application materials can be obtained electronically.

Go to: www.uiowa.edu/admissions/graduate/index.html. (They can also be sent to the applicant on request.)

Program Timetable

Applicants selected as finalists will be invited for an in-person or telephone interview that typically occurs in December or January, followed by admission decisions soon thereafter.

Orientation is typically the last week of June, with the program starting about July 1.

The program typically takes 23-26 months to complete, but sometimes it takes a little longer to complete the thesis requirements.

Financial Aid

There is the potential for limited funding for U.S. citizen/permanent resident only through a private gift to the program in the form of a fellowship. The funding could include some tuition, books, stipend, and limited research and meeting travel costs. Resident tuition is charged to out-of-state students who receive research assistantships or fellowships of at least 25% time.

Ongoing financial support is not available to international applicants (or to non-dentist applicants) and students generally must secure their own funding (i.e., savings, loans). Rarely, limited financial support is available for international students, mostly through research assistantships. These assistantships are based on the availability of funds, the student's academic record and the assessment of the student's potential contribution to the research program. International students should contact the program director regarding financial support.

Additional Information

For further information on the graduate program in Dental Public Health, please write to:

Dr. John J. Warren
Director of Graduate Program in Dental Public Health
Department of Preventive and Community Dentistry
The University of Iowa
College of Dentistry, DSB
Iowa City, Iowa 52242

(319) 335-7184 (phone)
(319) 335-7187 (FAX)
john-warren@uiowa.edu

The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, creed, color, religion, national origin, age, sex, pregnancy, disability, genetic information, status as a U.S. veteran, service in the U.S. military, sexual orientation, gender identity, associational preferences, or any other classification that deprives the person of consideration as an individual. The university also affirms its commitment to providing equal opportunities and equal access to university facilities. For additional information on nondiscrimination policies, contact the Director, Office of Equal Opportunity and Diversity, the University of Iowa, 202 Jessup Hall, Iowa City, IA, 52242-1316, 319-335-0705 (voice), 319-335-0697 (TDD), diversity@uiowa.edu.