



Department of Epidemiology

September 2006

Welcome to the Department of Epidemiology. The 2006-2007 edition of our Department of Epidemiology Guide introduces you to the Department and helps you to meet your educational goals and to have a productive and enjoyable year.

The Academic Guide complements the Student Handbook distributed by the School each year and it should be read along with the Handbook and the School Catalog to gain a full picture of the Department and the School. The Guide summarizes the courses required and recommended for each area of concentration, the requirements for the degree programs offered by our Department, and other information you may need. Because the Guide is revised annually, please be sure to use the most recent edition of the Guide in planning and following your academic program in the Department.

Students should carefully read the listing of Competencies For Students and the Advisor/Advisee Manual. We have structured our educational program around the competencies. Our curricula are developed with the competencies as guiding principles and the written comprehensive examination is directed at testing knowledge described in the competencies. In addition, the Advisor/Advisee Manual is intended to facilitate this key point of interaction between students and faculty members.

2006 marks the first year of a new core sequence of courses in epidemiologic methods (751-754). This sequence deepens and better integrates our teaching of methods. For students outside of the department, the applied courses have also been modified. We welcome and need your feedback on these new courses.

I hope that your time in the Department will be enjoyable and rewarding, both educationally and personally. The faculty and staff of the Department are here to help you in meeting your educational and professional goals. I look forward to meeting and talking with you.

Jonathan M. Samet, M.D., M.S.
Professor and Chairman

Protecting Health, Saving Lives—*Millions at a Time*

DEPARTMENTAL OVERVIEW

Protecting Health, Saving Lives—*Millions at a Time*

MISSION STATEMENT

Mission Statements

Department of Epidemiology

The mission of the Department of Epidemiology of the Johns Hopkins University School of Public Health is to improve the public's health by training epidemiologists and by advancing knowledge concerning causes and prevention of disease and promotion of health. As the oldest autonomous academic department of epidemiology in the world, the Department of Epidemiology has long maintained leadership in fulfilling this mission.

The specific goals of the Department are to:

- provide the highest quality education in epidemiology and thus to prepare the next generation of epidemiologists;
- advance the science of epidemiology by developing new methods and applications;
- use the methods of epidemiology to investigate the etiology of disease in human populations;
- use epidemiologic methods in evaluating the efficacy of preventive and therapeutic modalities and of new patterns of health care delivery,
- develop methodologies for translating epidemiologic research findings into clinical medicine;
- develop approaches for applying the findings of epidemiologic research in the formulation of public policy and to participate in this formulation and the evaluation of the effects of such policy.

In effecting these goals, the Department's scope extends well beyond the bounds of the Department's students and faculty. The Department has long served as a resource for epidemiologic training and research for students and faculty in other departments of the Bloomberg School of Public Health as well as in The Johns Hopkins Schools of Medicine and Nursing and The Johns Hopkins Hospital. The Department's impact reaches to the city, state, national and international levels.

Bloomberg School of Public Health

The Johns Hopkins University Bloomberg School of Public Health is dedicated to the education of research scientists and public health professionals, a process inseparably linked to the discovery and application of new knowledge; and through these activities, to the improvement of health and prevention of disease and disability around the world.

The School's logo and tagline were released on September 5, 2002. "Protecting Health, Saving Lives, Millions at a time"

"As a leading international authority on public health, the Johns Hopkins Bloomberg School of Public Health is dedicated to protecting health and saving lives. Every day, the School works to keep millions around the world safe from illness and injury by pioneering new research, deploying its knowledge and expertise in the field, and educating tomorrow's scientists and practitioners in the global defense of human life."

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A BRIEF HISTORY

A BRIEF HISTORY OF THE DEPARTMENT

The following is an extract from the book *Disease and Discovery: A History of the Johns Hopkins School of Hygiene and Public Health, 1916-1939* by Dr. Elizabeth Fee and presents the early developments of the Department of Epidemiology and the critical role played by Wade Hampton Frost, the first Chairman of the Department, in organizing the Department and developing a methodologic and academic structure to the discipline.

In 1919, when Wade Hampton Frost became head of the department of epidemiology, it was probably the first such department in the world. Epidemiology had not yet been constituted as a formal academic discipline, despite many classic epidemiological studies, most notably, perhaps, those to which Frost himself often referred: Snow on cholera, Budd on typhoid fever, and Panum on measles.

The earliest generations of epidemiologists undertook what would later be known as "shoe leather epidemiology," going out into a community, visiting the homes of the sick, gathering information on water supplies, milk, and foods, looking for sources of infection, talking to public officials, observing local conditions, and gathering data on possible hazards to health.

Frost's own early investigations of epidemic disease outbreaks -- typhoid fever, septic sore throat, poliomyelitis, and influenza -- had been models of "shoe leather epidemiology." Even when he became professor of epidemiology, and began to analyze data gathered by others ("armchair epidemiology"), he remained firmly committed to field research and to recognizing the special value of direct personal observation of social and environmental conditions. In a period when laboratory research was widely regarded as providing the one route to fundamental scientific knowledge, Frost argued that epidemiology as "the method of experience" was essential in developing a practical knowledge relevant to the problems of disease prevention:

Any modification of the conditions of life as they exist in a community . . . requires something more than a knowledge of the specific organisms of disease, in terms of their reactions under the controlled conditions of the laboratory. It equally requires a knowledge of the community, of the psychology of the people, their social organization, the conditions and events of their everyday life. It requires that the knowledge of fundamental causes of disease be fitted together with the

knowledge of people into a practical

epidemiology, directly applicable to prevention.

Frost also argued that epidemiology needed theoretical development, drawing on the theoretical understanding of disease derived from the biological sciences. He was remembered for the painstaking way in which he searched for theoretical relationships in the disorderly accumulation of empirical facts about specific diseases. A friend and admirer, wrote in the *American Journal of Public Health*, applauded this aspect of his personality:

We noted [in Dr. Frost] a restlessness whenever he confronted whatever presented the earmarks of an unattached fact. By "unattached" is meant some apparently sound observation without known relationships: a sort of toy balloon bumping against the ceiling, with its string dangling just out of reach. Faced with such a situation, Dr. Frost would pace the floor... For him the problem could be settled only in one of two ways: the balloon must either be punctured or moored. If it rose because of hot air, then heaven help its launcher. If it floated merely because present knowledge was not tall enough to grasp the dangling string and tie it into basic facts, Dr. Frost reached for and usually grasped that string.

Frost is widely recognized as having provided that analytic base and methodological principles for the subsequent development of epidemiology. Some have questioned whether his conception of the field included the chronic as well as the infectious diseases. In fact, his definition of epidemiology broadened over time as his work developed and expanded. In 1919, he defined epidemiology as "the natural history of the infectious diseases, with special reference to the circumstances and conditions which determine their occurrence in nature." By 1927, he raised the question whether the term "epidemiology" should be applied to noninfectious diseases: "It is entirely in conformity with good usage to speak of the epidemiology of tuberculosis; and it seems customary also to apply the term to the mass-phenomena of such non-infectious diseases as scurvy, but not to those of the so-called constitutional diseases, such as arteriosclerosis and nephritis."

In 1937, however, at the American Public Health Association meetings in New York, Frost declared that epidemiology included all diseases and hazards to health:

The health officer may well think of epidemiology as comprising the whole of the unremitting effort being made to clarify the relation between the diseases and disabilities which men suffer and their way of life. This view brings epidemiology into its proper relation to the health officer's administrative responsibilities to modify the environment or alter the habits of people as to afford them protection against impairment of health.

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Frost saw epidemiology as a tool to be used by practicing public health officers and not simply as an academic specialty. Indeed, he urged health officers to conduct their own epidemiological investigations even if they had no specialized training: "The closer his [the health officer's] actual contact with people in their homes, in schools and in clinics, the better are his opportunities for observation, and if he lacks skill he need only confine himself at first to simple problems."

During his time in Baltimore, Frost organized major research projects on the epidemiology of diphtheria, influenza, the common cold, and tuberculosis. The diphtheria study provided an analysis of the spread of infection in households and communities and highlighted the important role played by concealed infections. The studies of influenza and the common cold were especially useful in developing statistical methods for following families over time to determine the frequency of respiratory infections. The work on tuberculosis was important in initiating research on the chronic diseases. Frost argued that such studies required new methods of longitudinal analysis and he introduced methods of measuring the risk of developing disease over different periods of the life span.

Frost had arrived at the School of Hygiene without teaching experience and with no models for developing a course of instruction. He cautiously introduced his first plans for the department: "The field of epidemiology as a separate department is not yet clearly defined . . . so that the scope and methods of instruction must be worked out gradually." The "laboratory method" of teaching epidemiology that Frost subsequently developed became so successful that epidemiological departments throughout the country later copied it. He used real case studies to teach techniques of problem solving, he supplied original epidemiological data from ongoing investigations, suggested methods of analysis, and then let students debate possible approaches and solutions.

Students were required to tabulate the crude data, state any pertinent facts known about the epidemiology of the disease in question, and present an interpretation of the whole set of data in written form.

Lectures on epidemiological methods and the interpretation of field data supplemented laboratory classes. Students who loved the laboratory style of teaching sometimes found Frost's lectures dull; others realized "they were being treated to closely reasoned arguments and had better not miss a word." If Frost discovered a flaw in his own argument, he became completely engrossed in the problem at hand, and often forgot his audience, apparently talking, debating, and muttering to himself at the blackboard. As one former student paraphrased Oscar Wilde's comment about Walter Pater: "Frost was not so much heard, as overheard." Working with individual students, Frost applied perfectionist standards. Many found this process exhausting, but also a superb training. As

Ernest Stebbins, later dean of the school, explained, "If he tore your paper to pieces you knew it was good."

Until 1929, Frost remained an active officer of the United States Public Health Service. He was frequently asked to consult on ongoing field investigations, and used these investigations to provide raw data for teaching and student research. He resisted pressure to take a high administrative position in the Public Health Service and, feeling torn between his dual commitment to the school and the service, eventually resigned the latter position in 1929. He continued, however, to be much in demand as a consultant to epidemiological investigations and gave freely of his time to those asking for his advice and assistance. Frost was also a scientific director of the International Health Board of the Rockefeller Foundation, where he successfully argued the position that practical programs of disease control must be aided by an ongoing process of epidemiological research.

In 1927, the International Health Board asked Frost to organize a conference on epidemiology at the School of Hygiene. This conference, which brought together leading epidemiologists and state health officers, was influential in encouraging the development and institutionalization of epidemiology in health departments across the country. Fifteen years later, John A. Ferrell recalled the meeting: In May 1927, about 60 scientists assembled in Baltimore to formulate plans for the development and enlargement of epidemiological services throughout the United States. At that time only a few state health departments had divisions of epidemiology which were supplying services of the caliber recommended by the conference. A recent review of the situation shows that the epidemiological services of these states have more than quadrupled in extent in the years since 1927. Through his research, teaching, and other professional activities, Frost played a major role in making epidemiology an analytic discipline, one that became central to public health theory and practice by relating the scientific knowledge and techniques of many disciplines to the practical problems of disease control.

From its inception the Department of Epidemiology aimed at training future epidemiologists as well as at the development of knowledge about the epidemiology of various diseases and methods for their investigation. The Department graduated a number of students both at the Master's and the Doctoral levels. These graduates became leaders in the practice of public health, in research as well as within the academic world. Kenneth Maxcy followed W.H. Frost as the second chairman of the Department from 1938 until 1954. As with Frost, Maxcy was very much involved in addressing the major public health problems of the day and focused his attention on endemic typhus and poliomyelitis. Although this period was marked by the Second World War and its aftermath, there were major developments within the U.S. Public Health Service where the Department and its graduates had a major role including the development of the Centers for Disease Control. (Alexander Langmuir was a student and junior faculty member in the Department and he

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pioneered the establishment of the Epidemic Intelligence Service at the CDC.)

As it was the case for Frost, Philip Sartwell joined the Department from the U.S. Public Health Service in 1947. He became the chairman of the Department in 1954 and continued heading it until 1970. What was started as a very productive interaction with faculty from Biostatistics in the days of Frost in research, was further developed in teaching. Thus, faculty from both departments participated in the teaching of joint courses. Also, a number of methodologic advances were made as a result of such interaction; i.e., the Reed-Frost model of the spread of epidemics and Sartwell's model for the distribution of incubation periods.

With the increasing importance of non-infectious diseases as public health problems, the School of Public Health made a decision to initiate a major initiative that addressed these problems. Dr. Abraham Lilienfeld, who was a graduate of the Department and had developed an important cancer epidemiology program at the Roswell Park Memorial Institute in Buffalo, New York, and was involved in a number of initiatives at the New York State Health Department, was recruited to head that effort in Chronic Diseases. As a very dynamic leader, Abe Lilienfeld was successful in bringing together a research and faculty team with a multidisciplinary background to address the issues of cardiovascular disease and cancer, as well as other chronic diseases. The Department of Chronic Diseases began in 1958 with Lilienfeld as its chairman. Through these efforts important contributions were made to the epidemiology and prevention of these diseases and the development of appropriate methodological tools.

In 1970, upon the retirement of Philip Sartwell as chairman of the Department of Epidemiology, the Department of Chronic Disease was integrated into the Department and Dr. Lilienfeld became the chairman of the joint Department of Epidemiology. In addition to recruitment of new faculty and the expansion of the educational and research programs of the reorganized Department, Abe Lilienfeld worked with a number of outstanding students. One of these students, Leon Gordis, replaced him as chairman of the Department in 1975.

Between 1975 and 1993 the Department enjoyed a period of continuous growth and development under the leadership of Dr. Gordis who, in addition to being an accomplished researcher in childhood and chronic diseases, has been a leading educator in epidemiology. He brought Epi 1 to its current high level and established a strong

presence for clinical epidemiology in the teaching of medical students. His introductory text, *Epidemiology*, now in its second edition, is based on his many years of experience in teaching Epi 1.

During Dr. Gordis' tenure, the educational programs were placed at the forefront of the Department's priorities and major new initiatives in teaching and training were developed with the School of Medicine. At this time, the Department assumed a structure, based around programs that served as a focus for research and training. These programs included General Epidemiology, Clinical Epidemiology, Human Genetics/Genetic Epidemiology, Infectious Disease Epidemiology, and Occupational and Environmental Epidemiology. The Clinical Epidemiology Program originated jointly with the School of Medicine and is housed in the Welch Center for Prevention, Epidemiology, and Clinical Research. The growth of the Infectious Disease Epidemiology Program reflects the tragic rise of HIV and AIDS. The Human Genetics/Genetic Epidemiology and Occupational and Environmental Epidemiology Programs have been long-standing strengths of the Department. The specialty programs of the Department spawned further areas of emphasis. This evolution was acknowledged in 2000 with a faculty decision to replace the programs with the following areas of concentration: General Epidemiology, Clinical Epidemiology, Clinical Trials Training Program, Epidemiology and Biostatistics of Aging, Human Genetics and Genetic Epidemiology, Infectious Disease Epidemiology, and Occupational and Environmental Epidemiology.

In 1993, following the resignation of Dr. Gordis from the chairmanship of the Department, an international search was organized and Dr. Jonathan Samet, a pulmonary physician and epidemiologist, was selected as the new chairman of the Department, beginning in the summer of 1994.

Over the years since Dr. Samet's arrival, the Department has continued to evolve. The Department's faculty have expanded substantially in numbers and expertise. The curriculum's breadth has correspondingly expanded. The methodologic offerings have been expanded and are being unified. New initiatives in distance education have been started.

As illustrated in these historical glimpses, the environment of the Department of Epidemiology has always been dynamic where teaching occurs as a result of the interaction with research and problem solving. The leading role of the Department in methodologic development is a continuing emphasis of faculty and students.

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Department Structure

Department Structure

Chair:

Jonathan M. Samet

General Epidemiology

Lisa P. Jacobson

Deputy chairs:

Terri Beaty

David D. Celentano

Genetic Epidemiology

Terri Beaty

Doctoral Students Program Co-Directors:

Steve Goodman

Eliseo Guallar

Infectious Disease Epidemiology

David Celentano & Taha E. Taha

Occupational and Environmental
Epidemiology

Genevieve Matanoski

DrPH Executive Board Member

Michel Ibrahim

Masters Students Program Director:

Michel Ibrahim

MPH Executive Board Member:

Susan Tonascia

MPH Faculty Concentration Directors:

Epidemiological and Biostatistical Methods for
Public Health and Clinical Research

Rosa Crum

Marie Diener-West

Infectious Diseases

Clive Shiff

Kenrad Nelson

Neal Halsey

Public Health Nutrition

Laura Caulfield

Eliseo Guallar

Areas of Concentration Directors:

Cancer Epidemiology

Elizabeth Platz (Interim Director)

Cardiovascular Diseases

Josef Coresh

Clinical Epidemiology

Neil Powe

Clinical Trials, Center for

Kay Dickersin

Epidemiology of Aging

Linda Fried & Paulo Chaves

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Department Structure

The Department of Epidemiology's academic programs are organized into the following Areas of Concentration and headed by Director(s) as listed below. These represent areas in which there are specific course sequences and requirements. Each has a journal club as well. The faculty are loosely aligned with the areas of concentration above; however, many choose to collaborate (just as students are encouraged to do) across disciplines and departments. Students in the Department may specialize in any of these areas. In addition, the Risk Sciences and Public Policy Institute offers a certificate program and research opportunities in the risk sciences.

The Department supports a number of centers including; the George W. Comstock Center for Public Health Research and Prevention; Clinical Trials; the Welch Center for Prevention, Epidemiology and Clinical Research; the Institute for Global Tobacco Control; Risk Sciences and Public Policy; and the Johns Hopkins Center for Autism and Developmental Disabilities Epidemiology. Further information about these centers and other research opportunities is located in the Resources section of this Guide. * Additionally, Dr. Alvaro Munoz heads a group in Statistical Epidemiology

To carry out the Departmental activities the following Committees of the Department have been established. Communication with these committees is handled through The Academic Support Core in W6508.

- *Admissions and Credentials Committee* (Dr. Lisa P. Jacobson, chair) handles review and evaluation of applications, oversight of recruitment activities, rules on student requests for course waivers, changes of status (leave of absence, reinstatement, degree, and area of concentration) and verifies degree requirement completion for graduation. It also monitors academic progress of students and handles issues related to inadequate performance.
- *Student Funding Committee*: (Dr. Chris

Beyrer, chair) evaluates candidates and requests and oversees the distribution of scholarships and financial awards. It sets student funding policies.

- *Comprehensive Examination Committee*: (Dr. Shruti Mehta, chair) writes, administers, and coordinates the grading of the annual written examination for masters and doctoral students.
- *Curriculum Committee*: (Dr. Steve Goodman, chair) examines current and proposed courses, created and maintains the competencies of the academic programs and plans, guides and evaluates curriculum for the Department as a whole including course sequences and requirements.

Faculty Committees established include the

- *Faculty Executive Committee*. The Committee introduces topics on behalf of the faculty and takes on the responsibility and work of formatting solutions/policies for any faculty issues, so that options can be clearly and succinctly presented to the full faculty for decisions. Specifically, the Committee is responsible for (a) introducing and discussing issues and/or decisions related to the faculty such as resource allocation, recruitment efforts, and other matters, (b) formulating potential solutions/policies to the full faculty and facilitating discussion for decisions by the full faculty when necessary.
- *Epidemiology Administration Financial Advisory Committee*: EAFAC reviews the financial/administrative practices within the Department and determines if policies and procedures currently in place meet the current and future needs of the Department.

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Department Structure

Additionally, the
Epidemiology Student Organization
handles student-life related issues. The
officers for 2006-07 are listed:
General contact email is ESO@jhsph.edu

Co-Presidents: Lindsay Jorgensen
ljorgens@jhsph.edu
Emily Henkle
ehenkle@jhsph.edu

Information
Chair/Website: Sara Schonfeld
sschonfe@jhsph.edu

Service Chair: Kate Grabowski
mgrabow@jhsph.edu

Sports Chair: Bryan James
bjames@jhsph.edu
Nrupen Bhavsar
nbhavsar@jhsph.edu

Social Chair: Samara Rifkin
srifkin@jhsph.edu

ESO Room
Coordinators: Justin Lessler
jlessler@jhsph.edu
Megan Salter
msalter@jhsph.edu

Student
Assembly Rep: Rachel Millstein
rmillste@jhsph.edu

Doctoral Student (open position)
liaison:

Master's Student Liaison: Neha Chande
nchande@jhsph.edu

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ACADEMIC ETHICS

Academic Ethics Code *

The faculty and students of the School of Public Health have the joint responsibility for maintaining the academic integrity and guaranteeing the high standard of conduct of this institution.

An ethical code is based upon the support of both faculty and students who must accept the responsibility to live honorably and to take action when necessary to safeguard the academic integrity of this University.

Students enrolled in the School assume an obligation to conduct themselves in a manner appropriate to The Johns Hopkins University's mission as an institution of higher education. A student is obligated to refrain from acts which he or she knows, or under the circumstances has reason to know, impair the academic integrity of the University. Violations of academic integrity include, but are not limited to, cheating, plagiarism; knowingly furnishing false information to any agent of the University for inclusion in the academic records; falsification, forgery, alteration, destruction or misuse of official University documents or seal; violation of the rights and welfare of human subjects in research; violation of the welfare of animal subjects in research, falsification of research results; misconduct as a member of either School or University committees or recognized groups or organizations.

All members of the academic community are responsible for the academic integrity of the university. Students and faculty alike must work together to minimize the possibility of violations of academic integrity.

The faculty is responsible for the conduct of examinations, for announcing the ground rules for all work in a course at the beginning of the term in which the course is offered, and for the security of examination papers and teaching laboratories. Proctoring is at the discretion of the instructor.

A student with knowledge of any violation of academic integrity governed by the School of Public Health constitution has an obligation to report such violation, including the identity of the alleged violator(s) to the appropriate faculty member, one of the deans or to the Academic Ethics Board.

All members of the Johns Hopkins community are responsible for immediately informing the Academic Ethics Board of the School of Public Health of any suspected violations of its Constitution. The Ethics Board, composed of six students and four faculty members, is responsible for implementing its Constitution according to the procedures set forth therein. This includes formal hearings of suspected violations. Students and faculty should become familiar with the Constitution, copies of which can be obtained in the office of one of the deans responsible for student affairs.

To be approved for graduation, the student must have all outstanding charges of misconduct and violations of academic ethics resolved.

- An Excerpt: **The Code in its entirety can be found in the School-wide Student Handbook under *Policy and Procedure Memorandum Students 1***

All students in the Department need to read and follow this code. Failure to adhere to the academic ethics code may result in dismissal from program, department and/or school.

ACADEMIC ETHICS

THE JOHNS HOPKINS UNIVERSITY Policy on Discrimination For Disabled Persons

The Johns Hopkins University does not discriminate on the basis of race, color, gender, religion, sexual orientation, national or ethnic origin, age, disability, marital status, or veteran status in any student program or activity administered by the University or with regard to admissions or employment. The University provides appropriate, necessary, and reasonable accommodation to qualified students, faculty, and staff who are disabled.

When generally accessible facilities do not adequately accommodate a specific disability, the University makes program and/or facility adjustments as are reasonably necessary to assure individual access.

For individual-specific accommodations, individuals are required to provide from an appropriate professional diagnostician a comprehensive evaluation of their specific disability and recommended accommodations based upon their current level of functioning in an academic or employment setting. This documentation regarding students should be forwarded directly to the school's disability coordinator immediately after the school's offer of admission and before the student is enrolled. Evaluation and recommended accommodation for employees should be forwarded directly to the Human Resources Office. The University reserves the right to request additional information from an individual's health care provider, or a health care provider that it designates, to verify appropriate accommodations.

Costs for personal attendants, personally prescribed devices, and services for personal use or study are the responsibility of the disabled student, faculty, or staff member.

Questions regarding this policy should be referred to Betty Addison, the school's disability coordinator, who may be reached at 410-955-3034; fax 410-955-0464; email baddison@jhsph.edu; Room E-1140. Additionally, the University Affirmative Action Office is located on the Homewood Campus: 205 Garland Hall, 410-516-8075.

