



American Journal of EPIDEMIOLOGY

Volume 146

Number 11

December 1, 1997

Copyright © 1997 by The Johns Hopkins University

School of Hygiene and Public Health

Sponsored by the Society for Epidemiologic Research

The Legacy of Epidemiology in the Department of Social and Preventive Medicine

A Commemoration of the Sesquicentennial of the State University of New York at Buffalo School of Medicine and Biomedical Sciences

John E. Vena,¹ Joyce E. Váňa,^{1,2} and Maurizio Trevisan¹

We are pleased to offer readers this issue of the *Journal* in commemoration of the 150th anniversary of the State University of New York at Buffalo School of Medicine and Biomedical Sciences. In September 1996, the Department of Social and Preventive Medicine held a symposium on epidemiology and preventive medicine with the purpose of honoring our past but contemplating the future of our department and the discipline of epidemiology. This collective reunion of past and present faculty and students provided time for reflections on our organizational and individual histories, current activities, and visions for the future. The series of papers presented in this issue portrays the spirit of the symposium and conveys a sense of the identity of our department. It is an eclectic mix of papers from both present and past faculty and students, providing historical observations, commentaries on our discipline, and emerging approaches and their influence on traditional epidemiologic practices as well as original contributions on cancer, respiratory, reproductive, and psychiatric epidemiology and two papers addressing methodological issues.

The symposium and discussion were strongly influenced by contemporary issues of the role of modern epidemiology in public health and the future of epidemiology. In his commentary, Phil Nasca (1), recent past president of the American College of Epidemiol-

ogy, stresses the articles by Susser and Susser (2, 3) and Pearce (4) as catalysts for stimulating further dialogue. Warren Winkelstein's editorial on those articles (5) reinforced the notion that modern epidemiology is overly concerned with methodology and has downplayed a population orientation, especially epidemiology practiced in academic settings. The failure of academic epidemiology was outlined by Carl Shy (6). Colditz (7) recently discussed the threat of epidemiology becoming a discipline remote from application and relevance. The Department of Social and Preventive Medicine at the University at Buffalo has been shaped by influences over several eras, and we are, unfortunately, just as guilty as other academic programs in perhaps overemphasizing modern epidemiology over public health applications in recent years. The symposium and current dialogue helped us reflect on the need to better integrate training of epidemiologists with public health in our academic programs. We highlight below for you the history of our department and summarize the nature and scope of its past and present academic training in epidemiology.

Review of our history revealed that the development and changes in the department were influenced by political and societal forces during certain eras, including the demise of strong local public health departments, movement from the area of infectious disease epidemiology to chronic disease epidemiology, and increasing reliance on external funding for biomedical research. The department, however, has needed to balance its missions in each of the important areas of training, research, and community service. As outlined below, the department evolved from a strong public health orientation to a vibrant epidemiology program,

Received for publication September 24, 1997.

Abbreviation: ECMC, Erie County Medical Center.

¹ Department of Social and Preventive Medicine, State University of New York at Buffalo, Buffalo, NY.

² Research Institute on Addictions, Buffalo, NY.

Reprint requests to Dr. John E. Vena, Department of Social and Preventive Medicine, State University of New York at Buffalo, 270 Farber Hall, 3435 Main Street, Buffalo NY 14214.

followed by significant downsizing coinciding with decreases in funding for the local health department and by the department's rebuilding in the 1980s, with a focus on chronic disease epidemiology. Throughout, we have been aware of and challenged by our strong historical heritage in epidemiology, beginning with the methodology of Austin Flint.

THE MEDICAL SCHOOL

The University at Buffalo Medical School was founded in 1846. One of the founding and most distinguished faculty of the University at Buffalo School of Medicine was Austin Flint, Sr. (1812–1886), one of the great physicians of nineteenth century American medicine (8). Flint was deeply respected both in this country and abroad as a clinician, diagnostician, medical educator, and writer. Indeed, Sir William Osler characterized him as “the Nestor of clinical medicine in the country” (9, p. 3).

Both locally and internationally, Austin Flint is well-known for his careful examination and notation of an outbreak of epidemic fever in North Boston, New York, as described by Winkelstein in this issue (10). Flint did not at that time (in 1845) recognize the source of the infection as the contaminated tavern well, but put forth a careful exposition of the clinical facts, recognizing the outbreak as a natural experiment in the communicability of disease (11). John Snow published his sentinel work on the transmission of cholera in 1849 (12), and in an oration delivered to the Medical Society of London in 1853, he remarked on his knowledge of Flint's work in North Boston (13).

Austin Flint identified himself with “rational therapeutics,” or conservative medicine. Fifty years of empiricism and skepticism about treatments had led a group of distinguished American physicians, including Jacob Bigelow, Worthington Hooker, Augustus A. Gould, Benjamin A. Cotting, and Flint, to advocate a conservative approach to therapies essentially unproven (14, 15). These medical leaders endorsed careful examination and comparison of clinical and therapeutic data as the scientific foundation of rational medicine. With respect to bloodletting, for example, they called for detailed comparison of patients treated and not treated by this form of therapy. “Where, I ask,” lamented Austin Flint in 1847, “are the data for arriving at any exact principles based upon properly ascertained numerical facts. . . !” (15, p. 386).

From his earliest days at Harvard Medical School, Flint had learned and admired the statistical method and the habit of case recording of the eminent Parisian clinician, Louis. All his life, he maintained a consuming interest in the natural history of disease, especially as a cardinal consideration in therapy. As early as

1843, Flint set up a hospital patient register in the Erie County Almshouse (16). He produced 16,222 folio pages of notes and observations on his patients, beginning at his graduation from medical school in 1833, and these formed the basis and depth of his extensive medical writing. He knew and appreciated the importance of impartial observation and cumulative numbers, basic to the science of public health, or epidemiology. Indeed, in his many papers on specific disease conditions, he often noted and emphasized what we would today call epidemiologic variables and risk factors: age, sex, occupation, season of the year, and concurrent conditions.

Austin Flint trained himself—and countless others—in the art as well as the science of careful observation; the necessity of an accumulation of cases; the objective analysis of frequency, order, and duration of symptoms; and outcome (15–18). Local historians—and alumni and students of the Department of Social and Preventive Medicine—understand that Austin Flint was an early and compelling clinician-epidemiologist. We can honor his explanation in his 1845 paper of his methodology and follow proudly in his footsteps:

I have not followed any bias of prepossession for the doctrine of contagion. . . . It is sometimes easy (and alas! too common), to select facts, and give them a direction to make them apparently conform to sustain a preconceived opinion. I had formed no opinion before contemplating the facts with regard to the subject under consideration; and I have endeavored to present the facts in this memoir precisely as they have presented themselves to my own mind (11, p. 34).

PRECURSORS

Precursors to the mission of the Department of Social and Preventive Medicine were courses in hygiene designed to address areas of public health. The first mention of a formal course occurs in the 1891–1892 Annual Announcement of the University of Buffalo (Medical School Catalog) (19). That year, a course of 10 lectures was given to second-year students by a Professor H. R. Hopkins. Notably, the course was introduced in the catalog as follows:

Preventive medicine as a branch of medical science has commanded more and more recognition with the progress of bacteriological investigations, and a knowledge of Hygiene for the preservation of the public as well as the individual health is at present indispensable to the practicing physician. The constantly increasing demand for qualified health officers and sanitary inspectors testifies to the fact that the public fully appreciates the benefits that can be derived from a systematic application of hygienic laws (19 (1891–1892), p. 10).

In 1891, a state law was passed that stipulated 3 years of medical school as a minimum for graduation. The total tuition for the 3 years was \$300, and board could "be obtained in respectable families at from \$3.50 to \$5.00 per week" (19 (1893–1894), p. 19). Requirements for graduation also included "twenty-one years of age, of good moral character, have written a thesis on a medical subject, and completed a three-year preceptorship under a regular physician" (20, p. 43).

With the acceptance of the germ theory of disease in the late nineteenth century and the development of aseptic techniques, public health principles became increasingly important in medical practice and education. In 1912, hygiene was taught in the junior year. Instruction was given by medical school faculty, supervised by a Professor Bowerman, and also by guest lecturers from the New York State Department of Health. Practical demonstrations in house disinfection, examination of water supplies, disposal of garbage, etc., were provided by the Public Health Department of the City of Buffalo, under its commissioner, Dr. Francis E. Fronczak, Medical School Class of 1897. By the next year, 1913–1914, Hygiene and Sanitation was listed as a division within the Department of Medicine. Instruction now included dietetics, military hygiene and tropical medicine, medical ethics, vital statistics, and preventive medicine, as well as hygiene and sanitary science. Thus, medical students were exposed to school health programs, techniques of vaccination, vital statistics, and infectious disease control—early epidemiologic tools in the pursuit of public health.

In the next 5 years, the division expanded to include medical jurisprudence, medical economics, and the history of medicine. Students continued to work closely with the Public Health Department of the City of Buffalo under Dr. Fronczak and with the municipal hospitals, under Dr. Walter Goodale, Class of 1903. The course in medical jurisprudence covered "medical expert testimony, insanity in its legal relations, the law of wills, and the legal rights and obligations of physicians" (19 (1915–1916), p. 35). In addition, each student was assigned a sanitary survey of a city district in his third year that was brought to completion in the fourth year and presented as a report before graduation (19 (1918–1919), p. 25).

THE DEPARTMENT

In 1918, at the end of World War I and in the midst of the great influenza epidemic, the Administrative Board of the Medical School created a committee to "look into the advisability of establishing a Depart-

ment of Preventive Medicine and Hygiene" (Minutes of the Administrative Board of the Medical School, October 7, 1918). The next year, 1919, the Department of Hygiene and Public Health was established. The first head was Dr. Walter S. Goodale, Assistant Professor of Hygiene and Public Health. Dr. Goodale was a socially conscious Buffalo physician, committed to public health. After only 4 years of private practice (1905–1909), he was appointed head of the Contagious Disease Hospital. Eight years later (1917), he was selected as superintendent of the newly organized Buffalo City Hospital (which is known today as the Erie County Medical Center) (ECMC) and devoted the rest of his life to creating a great public hospital. Very shortly after his appointment, he and Dr. Edward J. Meyer, chairman of the Buffalo City Hospital Board of Managers, worked out a form of affiliation with the medical school whereby the City Hospital became a teaching hospital for the university, an alliance that remains strong today: Over half of all the clinical departments of the medical school are based at ECMC. Dr. Goodale was driven by the conviction that everyone in the community should receive the finest medical service. From his base at the Buffalo City Hospital, he worked constantly to reach out to all aspects of the Buffalo community concerned with maintenance of the people's health. He worked as tenement house inspector to assist in the enforcement of the New York State Tenement House Law. He served on the City Health Commissioner's special advisory committee to deal with the influenza epidemic. This committee met daily during the worst parts of the epidemic. It instituted strict public health measures to limit public assembly, commandeered half of the city's hospital beds, and pressed medical students into service. These draconian measures were successful: While the nation's morbidity rate was 10 percent, Buffalo suffered less than 6 percent. Chancellor Samuel P. Capen, in his remarks at Dr. Goodale's memorial service, characterized the first head of the department as a "vital and colorful personality. . . imaginative, intellectually fertile, courageous and possessed of limitless energy" (21).

Under Dr. Goodale, students were offered instruction in industrial and social medicine (meat packing plants and piggeries, as well as hearty cooperation with the Charity Organization Society, the Bureau of Public Welfare, the Children's Aid Society, and the District Nursing Association) in addition to hygiene, sanitation, medical jurisprudence, economics, ethics, and history. In 1920, two other instructors in hygiene were listed, as well as "special lecturers," including state and local public health and sanitation officers and 11 other medical school and university faculty. Dr. Goodale was named full Professor of Hygiene and

Public Health in 1925 and remained head of the department until 1940.

Upon Dr. Goodale's retirement, William T. Clark was recruited from Johns Hopkins to serve as part-time chair during the World War II era. The table below provides a time line for the history of the department. Archibald S. Dean, whose work is highlighted by Winkelstein (10) in this issue, was appointed part-time chairman in 1945. During Dr. Dean's leadership, the name of the department was changed to Preventive Medicine and Public Health, the close collaboration with the Erie County Health Department was continued, and the Chronic Disease Research Institute was established in the early 1950s.

In 1953, upon the dedication of a new medical school building, Berwyn F. Mattison, then Erie County Commissioner of Health, wrote an editorial stressing how the physician and the University itself are related to the community in which they exist. We quote Dr. Mattison:

In medical schools, one of the newer developments during the last decade, has been more emphasis on the teaching of the medical student about this relationship. Not only must he be concerned with his patient's relationship to his family but also with his relationship to the city, the state and the nation within which he lives. Furthermore, he must learn how as a physician later on, to take his due responsibility for community leadership in matters having to do with health. The Department of Preventive Medicine and Public Health of the medical school attempts to provide the doctor-to-be with some background in community health agencies and in community diagnosis so that he may effectively carry out this type of leadership (22, p. D29-C).

At that time, Dr. Milton Terris was Professor of Epidemiology in the Department of Preventive Medicine and Public Health. Dr. Terris served as host for the annual meeting of the American Public Health Association in Buffalo in 1954.

The department also had a long history of collaboration with Roswell Park Cancer Institute. In the early 1950s, Morton Levine, recruited to the epidemiology program at Roswell Park Cancer Institute Drs.

Abraham Lilienfeld, Saxon Graham, William Haenszel, and others. The late 1950s and early 1960s also brought the recruitment of Dr. Warren Winkelstein to the Chronic Disease Research Institute and the Erie County Health Department and Dr. Edward F. Marra as first full-time chairman of the department. Under Dr. Marra's leadership, the department continued the strong relation with the health department and the Chronic Disease Research Institute. Among those serving in the department were Drs. Warren Winkelstein, Morton Levine, Saxon Graham, Michel Ibrahim, Harry Sultz, Peter Isaacson, David Sackett, and Craig Turnbull. These investigators initiated community-based epidemiology studies and clinical investigations that have resulted in significant contributions to the field. From the mid-1950s to October 1991, the department was housed at 2211 Main Street, the site of the old Merchant Marine Public Health Service Hospital and, subsequently, the Chronic Disease Research Institute. In the early 1960s, Dr. Winkelstein conducted the Buffalo Health Study, one of the first community-based studies among a random sample of a population. This study is the basis for a prospective investigation as reported by Dorn et al., which is the leading original contribution in this issue of the *Journal* (23). The department and the Erie County Health Department were also fortunate to have assigned epidemiology intelligence officers during the 1960s and early 1970s. Among those who served were David Rush and Robert Wallace. In 1967, under Dr. Marra's leadership, the department established a graduate master's degree program in epidemiology. The first two graduates of this program in the early 1970s were Robert Wallace and Phil Nasca. Also in 1967, the department's name was changed to Social and Preventive Medicine to reflect the broader and expanded research and teaching efforts in the social aspects of health. With downsizing of the Erie County Health Department, many of the faculty took other positions in the early 1970s, and the department declined in the number of staff and faculty. After Dr. Marra's retirement in 1977, the department was under the direction of Acting Chairman Dr. Harry Sultz from 1976 to 1979 and Dr. Glen Gresham from 1979 to 1981. In

Year	Name of department	Head/chair
1919-1940	Hygiene and Public Health	Walter S. Goodale, MD, Class of '03
1940-1945		William T. Clark, MD, DPH, Class of '25
1945-1960	Preventive Medicine and Public Health (1946)	Archibald S. Dean, MD
1960-1976	Social and Preventive Medicine (1967)	Edward F. Marra, MD
1976-1979		(Acting) Harry Sultz, DDS, Class of '47
1979-1981		(Acting) Glen Gresham, MD
1981-1991		Saxon Graham, PhD
1991-1993		(Acting) Maurizio Trevisan, MD
1993-Present		Maurizio Trevisan, MD

1981, the department entered a period of growth under the leadership of Dr. Saxon Graham, who subsequently recruited a number of faculty. The specialties of these faculty members were carefully selected to provide a representation of the most current fields in social and preventive medicine, including occupational and environmental epidemiology, cancer epidemiology, cardiovascular disease epidemiology, reproductive epidemiology, health care organization, nutritional epidemiology, health behavior, and others. In addition, part-time professors were recruited to teach and conduct research in specialized areas, including infectious disease epidemiology, law and medicine, and psychiatric epidemiology. Saxon Graham retired in 1991. In January 1993, Dr. Maurizio Trevisan, the department's cardiovascular disease epidemiologist, was named chairman. The Department of Social and Preventive Medicine currently comprises 12 full-time faculty, approximately 60 affiliated part-time faculty, and 47 support staff engaged in vibrant and well-funded interdisciplinary epidemiologic training and research programs.

EPIDEMIOLOGY TRAINING

The department continues to be responsible for providing the medical students and preventive medicine residents curriculum in the areas of epidemiology, biostatistics, preventive medicine, medical care organization and policy, and clinical epidemiology. This past year was the 30th anniversary of our master's program in epidemiology and the 21st year of the Ph.D. program in epidemiology and community health, which is a joint doctoral program with Roswell Park Cancer Institute. This past semester, there were 71 graduate students enrolled, 37 in the master's program, and 34 in the doctoral program. Befitting the sesquicentennial of the university, we graduated our 150th epidemiology student this past year. Graduates of our epidemiology training program have been placed as researchers, planners, administrators, educators, and program managers and have gone to work in health departments, universities, and schools of public health and, in the private sector, in industry or epidemiology research firms.

In our tradition and with the inspiration of the luminaries in epidemiology who have served our department in the past, we continue to retain our commitment to maintaining a strong foundation in epidemiology and preventive medicine for our teaching, research, and university service missions. The sesquicentennial symposium afforded the opportunity to reassess our missions and goals so that we can better address the many public health challenges we will face as we approach the new millennium. As you read and reflect on the selected

papers for this special issue of the *American Journal of Epidemiology*, we invite you to join us in commemorating the sesquicentennial of the School of Medicine and Biomedical Sciences.

REFERENCES

1. Nasca PC. Epidemiology: current problems and future opportunities. *Am J Epidemiol* 1997;146:907-11.
2. Susser M, Susser E. Choosing a future for epidemiology. I. Eras and paradigms. *Am J Public Health* 1996;86:668-73.
3. Susser M, Susser E. Choosing a future for epidemiology. II. From black box to Chinese boxes and eco-epidemiology. *Am J Public Health* 1996;86:674-7.
4. Pearce N. Traditional epidemiology, modern epidemiology, and public health. *Am J Public Health* 1996;86:678-83.
5. Winkelstein W Jr. Editorial: Eras, paradigms, and the future of epidemiology. *Am J Public Health* 1996;86:621-2.
6. Shy CM. The failure of academic epidemiology: witness for the prosecution. *Am J Epidemiol* 1997;145:479-84.
7. Colditz GA. Epidemiology: future directions. *Int J Epidemiol* 1997;26:693-7.
8. Berman P. Austin Flint—America's Laennec revisited. *Arch Intern Med* 1988;148:2053-6.
9. Osler W. The coming of age of internal medicine in America. *Int Clin* 1915;4:1-5.
10. Winkelstein W Jr. Observations on the history of epidemiology in western New York, 1843-1960. *Am J Epidemiol* 1997;146:893-906.
11. Flint A. Account of an epidemic fever which occurred at North Boston, Erie County N.Y. during the months of October and November 1843. *Am J Med Sci (New Series)* 1845;10:21-35.
12. Snow J. On the pathology and mode of communication of cholera. *London Med Gazette* 1849;9:745-53, 923-49.
13. Snow J. On continuous molecular changes, more particularly in their relation to epidemic diseases: being the oration delivered at the 80th anniversary of the Medical Society of London. London, England: John Churchill, 1853:169.
14. Cassidy JH. American medicine and statistical thinking 1800-1860. Cambridge, MA: Harvard University Press, 1984.
15. Flint A, ed. Remarks on blood-letting. *Buffalo Med J* 1846;2:377-388, 450-455.
16. Flint A. Cases treated at the Erie County Almshouse. *Boston Med Surg J* 1843;29:390.
17. Evans AS. Austin Flint and his contributions to medicine. *Bull History Med* 1958;32:224-41.
18. Flint A. Report of clinical observations on continued (typhus and typhoid) fever. Based on an analysis of fifty-two cases. *Buffalo Med J* 1850;6:129-48.
19. State University of New York at Buffalo. Medical school catalogs. Buffalo, NY: State University of New York at Buffalo, 1891-1919.
20. Batt RE, Brody H, Finnegan S, et al. Another era. A pictorial history of the School of Medicine and Biomedical Sciences, State University of New York at Buffalo, 1846-1996. Virginia Beach, VA: The Donning Co., 1996:43.
21. Capen SP. Remarks at Dr. Walter S. Goodale's memorial service, November 23, 1941. Collection no. 5/3/28. Buffalo, NY: State University of New York at Buffalo university archives, November 23, 1941.
22. Mattison BF. U.B. dedication signals stride in education. *Courier Sun*, December 6, 1953, D29-C.
23. Dorn JM, Schisterman EF, Winkelstein W Jr, et al. Body mass index and mortality in a general population sample of men and women: The Buffalo Health Study. *Am J Epidemiol* 1997;146:919-31.