

Boston University

OpenBU

<http://open.bu.edu>

BU Publications

Evans Medicine

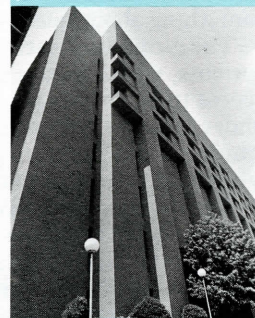
1990

Evans Medicine: Winter 1990 v. 5, no. 2

<https://hdl.handle.net/2144/22463>

Boston University

EVANS MEDICINE



VOLUME 5, NUMBER 2
WINTER 1990

Evans graduate Dr. William Paul has become one of the nation's most distinguished immunologists. For a profile, see page 4.

Evans Memorial Department of Clinical Research and Preventive Medicine

GENERAL INTERNAL MEDICINE

Section's concerns range from computers that 'talk' to measuring the severity of illness

The Evans Section of General Internal Medicine's character differs significantly from that of the department's other sections, says Mark A. Moskowitz, M.D., the section's head.

For instance, the section has an unusually broad role in training efforts. With section member Warren Hershman, M.D., taking the lead role, it oversees the clinical clerkship and the courses in physical diagnosis for Boston University School of Medicine students. Another member of the section, David Battellini, M.D., directs the medical house staff training program for the University Hospital, with the section itself providing residents with clinical experience that is heavily weighted toward outpatient care.

The section also runs its own clinic, headed by Susan Frankel, M.D. In addition, it exercises administrative control over several of UH's medical inpatient units.

The section's research concerns also have a distinctive quality, Dr. Moskowitz notes. "We tend to deal with very practical kinds of problems," he explains.

What follows is a sampling of the research projects underway in the section:

Improving on DRGs

A key flaw of the hospital reimbursement system based on DRGs—diagnosis related groups—is that it doesn't adequately reflect differences in severity of illness, says Dr. Moskowitz. "A diagnosis like congestive heart failure can cover an extremely wide spectrum of conditions," he says, "and the system doesn't fully take that into account."

The problem stems from the fact that DRGs

are based on discharge codes, not on clinical information. As a result, says the section head, the current system can account for only a small proportion of the variation in costs and length of stay across hospitals.

"Better measures are essential if we're going to make meaningful comparisons of resource utilization and quality among hospitals," says Dr. Moskowitz. "We want to gauge severity at the time of admission," he adds, "and then measure changes in a patient's con-

Dr. Moskowitz looks over some data sets with Jane Geraci, M.D., a research fellow.



The
University
Hospital

dition over time in ways that would tell us something about quality of care."

The group uses data collected on Medicare patients, which means the investigators have access to vast study populations. One group under scrutiny, for example, totals 400,000, among whom there are roughly 5,000 patients with congestive heart failure alone.

The investigators have shown that data collected at admission can provide a valuable guide to severity. "Elevated serum creatinine and high blood urea nitrogen (BUN) correlate closely with increased mortality across a wide range of conditions," says Dr. Moskowitz. Other indicators include fever, high or low white cell count, high or low serum potassium, and hypertension.

Although these are what Dr. Moskowitz calls "generic variables"—applicable across a range of conditions—the group is also looking for indicators related to specific diseases. The section head notes, for example, that findings on chest x-ray may prove very useful in the case of patients with pneumonia.

Among the advantages of the indicators under study, says Dr. Moskowitz, is the fact that they're routinely collected already. "We're not talking about calling for new tests," he says.

The indicators also have limitations, however. For example, they can account for no more than 40 to 50 percent of the variation in mortality rates among hospitals. "We know what some of the other factors are," says Dr. Moskowitz. "Quality of care is one, but there are others. Patient attitude is an example. You may not be terribly ill, but if you refuse an operation and die as a result, that's obviously not the result of how sick you were."

Still, Dr. Moskowitz is convinced the measures his group is working on will prove useful. "We can't achieve 100-percent reliability," he says, "but we can create a system that leads to more informed comparisons of the quality of care in different institutions. And I think the system will also let us make better judgments about treatment issues: what we should be doing more of, what we should be doing less of."

Smokers and quitting

Karen M. Freund, M.D., became interested in smoking cessation through experiences in her practice and in private life. "I was always intrigued by the notion that women have a harder time quitting than men," she says, "because that wasn't what I was seeing among my patients or my friends."

When she joined the Section of General Internal Medicine last year, therefore, she decided to explore the differences among men and women smokers.

The study population is made up of the smokers in the original Framingham Heart Study cohort, a group of 5,209 individuals who ranged in age from 30 to 62 when the Study began in the late 1940s.

At the Study's outset, roughly 1,500 men

and 1,100 women in the cohort smoked. Approximately 40 percent of them quit at some point over the succeeding four decades, says Dr. Freund, who heads the Women's Health Group, a unit of the Evans Medical Group that focuses on the health concerns of women.

"A significant number of the male smokers switched to pipes rather than giving up smoking altogether," says Dr. Freund. "If you consider these men to be switchers rather than quitters, the differences between the men and the women disappear."

To be sure, quitting patterns weren't alike in all respects. Women who smoked heavily seemed to have more trouble quitting than those who smoked less, whereas there was no such distinction among the male smokers. And women who succeeded in quitting generally had to make more attempts to do so than their male counterparts. Still, Dr. Freund thinks the fact that there were no differences in overall quitting rates is a finding that could be relevant for many physicians.

"I think physicians often see a woman who smokes heavily as someone who's going to have a hard time quitting," she says. "But based on our data, we think that efforts to get people to quit should be about equally effective for men and women."

In studying patterns of smoking cessation, Dr. Freund and her associates looked at factors other than gender. Among their findings:

- Having a spouse helps. "Married individuals were much more likely to quit than individuals who were unmarried or living alone," says the investigator.
- An acute episode related to smoking, such as a heart attack, prompts smokers to quit much more readily than the onset of a chronic problem, including lung cancer.
- Serious weight gain may not be as closely associated with quitting as many have thought. On average, says Dr. Freund, women smokers who quit gained only 3 to 5 pounds. "It appears the women got to a baseline weight just above their smoking weight, and stayed there," says the investigator.



Karen M. Freund, M.D.

'I was always intrigued by the notion that women have a harder time quitting than men, because that wasn't what I was seeing among my patients or my friends.'

Patient-computer link

Robert H. Friedman, M.D., and his associates have developed an experimental, telephone-based system that permits interaction between patients and a "talking" computer, and is designed to help physicians maintain ambulatory patients with chronic illnesses between office visits.

The new system—called the Telephone-Linked-Computer (TLC)—is currently being used by hypertensive patients to get word to their physicians about their use of medications and their blood pressure levels without imposing unduly on either party.

Dr. Friedman says an important motivation for the system was the fact that many patients don't comply with medication regimens. "This is a well-known phenomenon—one that may be the key reason why we're not more effective in caring for our patients," says the physician. "It's a particularly troublesome issue in dealing with patients with chronic conditions, such as hypertension."

The TLC system operates on a Digital Equipment Corp. minicomputer. (It can also work on a personal computer.) The system makes use of artificial "voices" created by a DECTalk speech synthesizer.

To make contact with the system, patients use a standard touchtone phone. In current tests, hypertensive patients call in once a week to report their blood pressure levels, use of medications, and any adverse reactions.

If a patient's blood pressure is alarmingly high, or if he or she has an unusually bad medication record for that week, the system is programmed to phone the office of that patient's physician right away with the information. More typically, the information is transmitted on paper, like a standard lab report.

According to Dr. Friedman, the computerized responses are individualized to specific patients, and can vary depending on what a patient reports. Thus, a typical interaction between a patient and the monitoring system might involve a question from the synthesizer along the lines of, "How many of your HydroDiuril tablets have you missed taking since last week?"

If the patient, using his or her touchtone phone, were to punch the 1 or the 2, the computer might say, "That's better than last week," or something else appropriately tailored to that patient's circumstances. If a patient on a one-tablet-a-day regimen punched the 5 or the 6, on the other hand, the computer might come back with, "You have missed a lot of those, haven't you?"

The system isn't intended to replace regular office visits, says Dr. Friedman, though he says it can sometimes permit increased intervals between visits. "If patients are doing well," he explains, "it may be possible for you to see them less often with our system."

Of course, there's always the issue of whether patients are reporting truthfully. Dr. Friedman, though, says there are ways to take account of that possibility. "If a patient reports any level of non-compliance," he says, "you

may not know whether they're being truthful about the degree of non-compliance, but you can be sure they're not complying."

Initial tests of the system compared a group of 60 patients under the care of Evans physicians with a group not using the system. Preliminary results indicate that patients enjoy using the TLC, says Dr. Friedman.

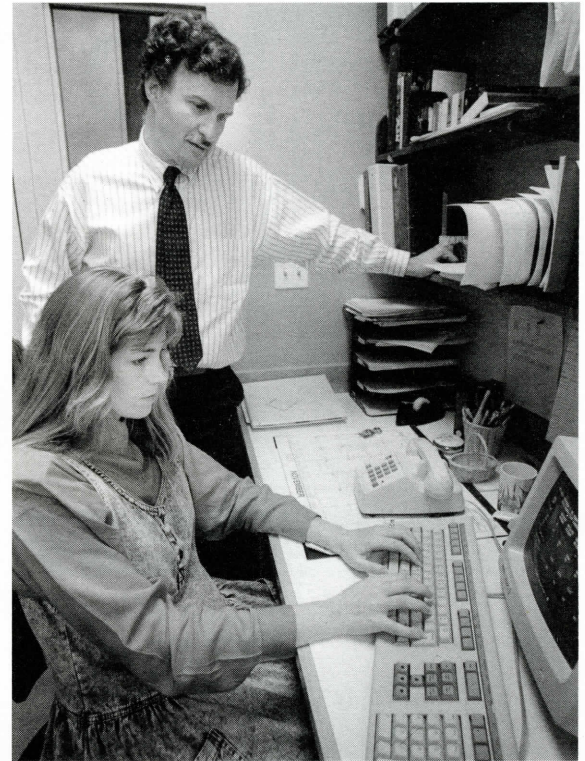
"Most patients feel reassured to know that their physicians are reviewing information every week about how they're doing," says Dr. Friedman. "We also find that patients seem to suspend judgment about dealing with a machine. They'll say, 'I'm really happy when my blood pressure's good because I can tell him—i.e., the TLC—how I'm doing.'"

Trial runs of the system have been extended to include a large number of patients in several area communities. Meanwhile, Dr. Friedman and his associates are working on comparable systems for other types of problems.

"The two issues we're focusing on right now are diet and exercise," says the investigator. "We have a project we're starting which is targeted to hyperlipidemia. We're going to test whether the system can help patients lose weight and reduce their intake of saturated fats and cholesterol." □

Suggested further reading

1. Jencks, S.F., Brooks, R.H., Iezzoni, L.I., Knaus, W., Krakauer, H., Lohr, K., and Moskowitz, M.A.: Case-mix measurement and assessing quality of hospital care. *Health Care Fin. Rev.*, 8, 39, 1987.
2. Moskowitz, M.A.: The use of hospital mortality rates to measure quality of care. *J. Am. Geriatrics Soc.* 36, 860, 1988.
3. Iezzoni, L.I., and Moskowitz, M.A.: MedisGroups: A clinical assessment of MedisGroups. *J.A.M.A.*, 260, 3159, 1988.
4. Blackhall, L.J., Torgerson, J.S., Stollerman, J.E., Kern, D.C., Hardy, W.L., and Friedman, R.H.: Logical and efficient communication between patients and the telephone-linked computer system. In Greene, R.A. (ed.), "Proceedings: The Twelfth Annual Symposium on Computer Applications in Medical Care," 463-467, 1988.



Dr. Friedman with technician Kathy Carey. The screen displays a mock-up of a TLC report ready to be transmitted to a physician's office.

'If your patients are doing well, it may be possible for you to see them less often with our system.'

A fascination with the immune system that dates to his Evans residency

If losing half your complement of fellow residents overnight qualifies as a house officer's nightmare, then William E. Paul, M.D., has experienced one.

It happened when Dr. Paul was beginning his residency year here at the University Hospital, which was then called Massachusetts Memorial Hospitals. "There were usually four assistant residents," says the 1962 Evans graduate, "but in my year two people were drafted, so it just left the two of us."

He and his colleague, Donald M. Small, M.D., currently head of the Boston University School of Medicine's Biophysics Institute, made it through the year, but it wasn't always easy, says Dr. Paul. "I still remember the ways in which Don Small helped a very tired and overwhelmed colleague through some rough nights," he says.

Yet if Dr. Paul's residency had its rough spots, it also exerted a profound effect on his career. He says he was influenced especially strongly by Alan S. Cohen, M.D., then as now a member of the Evans Section of Arthritis. (Dr. Cohen is also chief of medicine at Boston City Hospital.)

Dr. Paul remembers that when he got a break from the demands of his residency, he started doing research in Dr. Cohen's lab. At the time, the rheumatologist was already studying amyloid, the protein associated with the disease that bears its name—amyloidosis—as well as with Alzheimer's disease and other conditions.

Dr. Cohen would subsequently gain renown for his discoveries related to amyloid. In the early 1960s, though, he was simply trying to answer basic questions about the protein's make-up. "At that time," says Dr. Paul, "there was great controversy over

whether amyloid fibrils were made up of immunoglobulin."

Dr. Cohen and his new colleague wanted to resolve the issue. The former was experimenting with a new technique that involved attaching markers to antibodies specific for the immunoglobulins thought to make up amyloid fibrils—assuming, of course, that the structures were in fact formed from immunoglobulins.

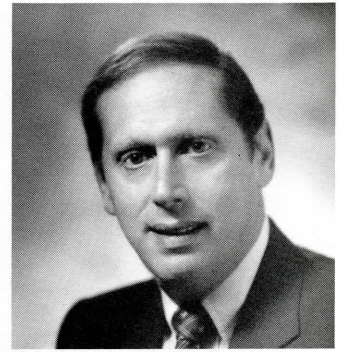
In the end, the technique failed to reveal the presence of immunoglobulins in the fibrils, notes Dr. Paul. That later turned out to be a fault of the approach, not of a misguided hypothesis. "It has since been shown that some types of amyloid fibrils do contain immunoglobulin light chains," he said, "but they're often in a form that can't be recognized by most antibodies."

If the work didn't resolve the amyloid question, however, it did divert Dr. Paul from an early focus on endocrinology to a lifelong fascination with the immune system.

The then-resident, who since 1970 has headed the Laboratory for Immunology at the National Institute of Allergy and Infectious Diseases, says Dr. Cohen introduced him to other immunologists. Among the key connections was one with Dr. Baruj Benacerraf, who would later win the Nobel Prize for his work on the genetic regulation of the immune response.

In the early '60s, Dr. Benacerraf was at New York University, recalls Dr. Paul. "I worked with him there for four years," he says, "and when he went to the National Institutes of Health, I went with him."

The Evans graduate not only participated in Dr. Benacerraf's prize-winning research, he also launched himself on a career that has been



William E. Paul, M.D.

Not long after completing his residency, Dr. Paul joined the lab of Dr. Baruj Benacerraf, who later would win the Nobel Prize.



Dr. Paul (back row, fifth from left) during his internship, with other residents and then Evans director Robert Wilkins, M.D. (front row, fourth from left).

Dr. Paul

Continued from page 4

marked by a series of major achievements. The more than 360 papers that bear his name include articles reporting:

- the revelation that T-cell activation requires that the cell interact with major histocompatibility class II molecules on the antigen-presenting cell's surface, as well as with the antigen itself;
- the existence of interleukin 4 (IL-4) and demonstration of the fact that it plays a key role in regulating IgE production in B cells; and
- the discovery that mast cells and related hematopoietic cells can produce IL-4 and other lymphokines.

For his many achievements, Dr. Paul has received a number of important honors, including the 3M Life Sciences Award of the Federation of American Societies for Experimental

Biology. In 1982, he was elected a member of the National Academy of Sciences. He has also served as president of the American Society for Clinical Investigation and the American Society of Immunologists.

At one point, early in his career, Dr. Paul had planned to return to the Evans, where he was to work with Dr. Cohen again. Although that didn't work out, the immunologist says he has wonderful memories of his association with the department.

Dr. Paul notes that during his residency, the department was professional home to such major figures as Drs. Franz Ingelfinger, Arnold Relman and Robert Wilkins. "They were enormously interesting people to have involved in your training," he says. Then, too, he says he found the department to be more humane in its treatment of trainees than others he was aware of. "The interns worked only every third night," he notes, adding that "as far as I know, that was pretty unusual in that era." □

Research Day: Top speakers, and a look at trainees' ongoing work

This past year's Evans Research Day, the fifth held to date, drew full houses to its two major lectures and a substantial crowd to its mid-day poster session.

The event is sponsored jointly by the Evans Department of Medicine and the Division of Medicine in the University Hospital. It was held this past year on October 3.

As with Research Days past, this one featured honors for trainees who made poster-session presentations. Three trainees were singled out for special recognition.

The distinguished basic science lecture, the final Research Day event, was given by Arthur Kornberg, M.D., a professor of biochemistry at Stanford University and a Nobel laureate. His topic was, "Initiation of Replication at the Origin of a Chromosome."

The distinguished alumnus lecture was by William E. Paul, M.D., a 1962 graduate of the Evans and currently chief of the Laboratory of Immunology of the National Institute of Allergy and Infectious Diseases. His subject was, "Living with Lymphokines, or, Interleukin 4 in the Immune Response." (For more on Dr. Paul, see the article on page 4.)

Both lectures were given in Keefer Auditorium, located in the Evans Building at the University Hospital. The poster session was in the Hiebert Lounge of Boston University School of Medicine.

The winning trainees and their topics were:

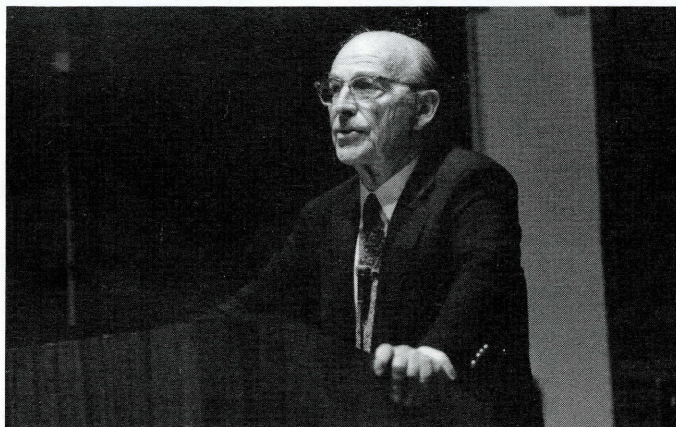
Kelvin Lam, Section of Hypertension, for: Lam, K.T., Mamuya, F., Brecher, P.I.: Regulation of G-protein expression in the rat kidney by glucocorticosteroids;

Berndt Simon, M.D., Peripheral Vascular Section, for: Simon, B.C., Cunningham, L.D., Cohen, R.A.: Oxidized low-density lipoproteins cause coronary artery contractions; and

Wolfgang Weise, M.D., Renal Section, for: Weise, W., Natori, Y., Levine, J., Salant, D.: Protective and therapeutic effect of fish oil on rat membranous nephropathy. □



Browsers look over some of the displays on view during Research Day poster session.



Dr. Kornberg

Evans Memorial Department
of Clinical Research
The University Hospital
88 East Newton Street
Boston, MA 02118-2393

Nonprofit Org.
U.S. Postage
PAID
Boston, MA
Permit No. 3469

Irene Christopher
Librarian
BUSM, L12

Noteworthy

J. Thomas LaMont, M.D., chief of the Section of Gastroenterology, has been appointed to the American Board of Internal Medicine, subspecialty gastroenterology. Dr. LaMont has also been named editor of *Viewpoints in Digestive Disease*, a publication of the American Gastroenterological Association. **Peter E. Krims, M.D.**, of the same section, has received a Career Development Award from the American Society for Gastrointestinal Endoscopy to study patients with disorders of the biliary system. A third member of the section, **David R. Cave, M.D., Ph.D.**, has been appointed to a subcommittee of the American Society for Gastrointestinal Endoscopy that is reviewing the society's administrative organization.

Samuel Bernal, M.D., Ph.D., has joined the Section of Medical Oncology, and has also been named an associate professor of medicine at BUSM. He is exploring membrane antigens on airway epithelial cells.

Richard A. Cohen, M.D., of the Peripheral Vascular Section has been appointed to the advisory board of *Research! America*. **Jay D. Coffman, M.D.**, chief of that section, has authored a book, *Raynaud's Phenomenon*, recently published by Oxford University Press.

Risa Beth Burns, M.D., a fellow in the Section of General Internal Medicine, has received a two-year award from the NRSA to study physiologic and functional measures of disease severity.

David I. Beller, M.D., head of the Research Immunology Unit, and **Matthew Fenton, M.D.**, a member of that unit, have received NIH awards to continue their research. **Gyorgy Frenzl, Ph.D.**, also a member of the unit, has been promoted to instructor at BUSM.

The chief of the Section of Cardiology, **Thomas J. Ryan, M.D.**, has been awarded the Pfizer Visiting Professorship by Ohio State University. **Jesse W. Currier, M.D.**, a member of that section, has been awarded an American Heart Association Affiliate Fellowship Grant to study post-surgical restenosis.

Evans/Transition

A total of 20 interns joined the Evans Department of Medicine for the 1989-1990 year. The new members of the department, and the medical schools from which they graduated, are:

Michael Banov, M.D., Emory University
Daniel Bausch, M.D., Loyola-Stritch University
Jeffrey Bortz, M.D., University of Iowa
Won Kyoo Cho, M.D., University of Pennsylvania
Lisa Cohen, M.D., University of Vermont
Kirsten Ecklund, M.D., Case-Western Reserve University
Andrea Fribush, M.D., University of Massachusetts
Jill Heytens, M.D., Boston University
Robin Ingalls, M.D., Harvard University
Kenneth Kato, M.D., Boston University
Lawrence Magras, M.D., Georgetown University
Sandra Marwill, M.D., Albany Medical College
Janet Pesaturo, M.D., University of Massachusetts
Barbara Price, M.D., Tufts University
Paul Schubert, M.D., Georgetown University
Debra Sherman, M.D., Albany Medical College
David Siegenberg, M.D., Witwatersrand University
Jeffrey Snow, M.D., Albany Medical College
Karen Susskind, M.D., Tufts University
Ellen Yang, M.D., University of Rochester.

Evans Medicine is published by the Evans Memorial Department of Clinical Research and Preventive Medicine of The University Hospital, a member of Boston University Medical Center. Editor is Jay D. Coffman, M.D., associate director of the Department; associate editor is Richard P. Anthony. Staff artist is Catherine LeBlanc. *Evans Medicine* is produced by Boston University Medical Center's Office of Publication Services, Owen J. McNamara, director. Send any correspondence to the Evans Memorial Department of Clinical Research, 88 East Newton Street, Boston, MA 02118. Norman G. Levinsky, M.D., is director of the Department.

Photo credits. Pages 1, 2, 3, 5, Bradford F. Herzog, page 4 (bottom photo) courtesy of Dr. Norman Levinsky.

