

UNDER THE JOINT
EDITORIAL SPONSORSHIP OF:

Brown Medical School
Eli Y. Adashi, MD, Dean of Medicine
& Biological Science

Rhode Island Department of Health
David R. Gifford, MD, MPH, Director

Quality Partners of Rhode Island
Richard W. Besdine, MD, Chief
Medical Officer

Rhode Island Medical Society
Kathleen Fitzgerald, MD, President

EDITORIAL STAFF

Joseph H. Friedman, MD
Editor-in-Chief

Joan M. Retsinas, PhD
Managing Editor

Stanley M. Aronson, MD, MPH
Editor Emeritus

EDITORIAL BOARD

Stanley M. Aronson, MD, MPH

Jay S. Buechner, PhD

John J. Cronan, MD

James P. Crowley, MD

Edward R. Feller, MD

John P. Fulton, PhD

Peter A. Hollmann, MD

Sharon L. Marable, MD, MPH

Anthony E. Mega, MD

Marguerite A. Neill, MD

Frank J. Schaberg, Jr., MD

Lawrence W. Vernaglia, JD, MPH

Newell E. Warde, PhD

OFFICERS

Kathleen Fitzgerald, MD
President

Barry W. Wall, MD
President-Elect

K. Nicholas Tsiongas, MD, MPH
Vice President

Diane R. Stedlecki, MD
Secretary

Mark S. Riddlen, MD
Treasurer

Fredric V. Christian, MD
Immediate Past President

DISTRICT & COUNTY PRESIDENTS

Geoffrey R. Hamilton, MD
Bristol County Medical Society

Herbert J. Brennan, DO
Kent County Medical Society

Rafael E. Padilla, MD
Pawtucket Medical Association

Patrick J. Sweeney, MD, MPH, PhD
Providence Medical Association

Nitin S. Damle, MD
Washington County Medical Society

Jacques L. Bonnet-Eymard, MD
Woonsocket District Medical Society

Cover: "Family of Parrot Tulips," oil on linen, by Janet Alling, a new resident of Providence whose works hang in several municipal hospitals in New York City. She exhibits locally at the Gallery at 17 Peck in Providence. e-mail: klingad@17peck.com or jalling@cox.net

Medicine Health RHODE ISLAND

VOLUME 89 No. 9 September 2006

PUBLICATION OF THE RHODE ISLAND MEDICAL SOCIETY

COMMENTARIES

296 **Doctor's Revenge**
Joseph H. Friedman, MD

297 **Mumps, Branks and other Impediments**
Stanley M. Aronson, MD

MEDICAL EDUCATION
Guest Editor: Philip A. Gruppuso, MD

CONTRIBUTIONS

298 **Medical Education at Brown Medical School**
Philip A. Gruppuso, MD

299 **The Brown Medical School Class of 2006**
Philip A. Gruppuso, MD Rose Bell, and Janice Viticonte

304 **Doctoring: Clinical Skills Teaching in the 21st Century**
Alicia D. Monroe, MD

307 **So What the Heck is an AHEC and What Does It Mean for Brown?**
Arthur A. Frazzano, MD, MMS, and Robert M. Trachtenberg, MS

312 **Education To Improve Interdisciplinary Practice of Health Care Professionals: A Pilot Project**
Jane Williams, PhD, RN, Laura Vares, MA, and Matthew Brumbaugh, MSW

314 **The Humble Fly: What a Model System Can Reveal About the Human Biology of Aging**
Johannes H. Bauer, PhD, and Stephen I. Helfand, MD

316 **Science and Technology Studies: Its Relevance To Medical Education and the Practice of Medicine**
Lundy Braun, PhD, and Anne Fausto-Sterling, PhD

COLUMNS

319 **HEALTH BY NUMBERS: – The Health of Rhode Island's Hospitals**
Bruce Cryan, MBA, MS

321 **QUALITY PARTNERS OF RHODE ISLAND – Rhode Island Health IE Project Update**
Mary Ellen Casey, RN, BS, MEd, COS-C

322 **HEALTH INSURANCE UPDATE – New Prompt Payment Regulation Offers Greater Protections to Physicians**
John Aloysius Cogan, Jr, MA, JD, and Patricia E. Huschle, MS

324 **PHYSICIAN'S LEXICON – The Words of Dermatology**
Stanley M. Aronson, MD

324 **Vital Statistics**

326 **August Heritage**

Medicine and Health/Rhode Island (USPS 464-820), a monthly publication, is owned and published by the Rhode Island Medical Society, 235 Promenade St., Suite 500, Providence, RI 02908. Phone: (401) 331-3207. Single copies \$5.00, individual subscriptions \$50.00 per year, and \$100 per year for institutional subscriptions. Published articles represent opinions of the authors and do not necessarily reflect the official policy of the Rhode Island Medical Society, unless clearly specified. Advertisements do not imply sponsorship or endorsement by the Rhode Island Medical Society. Periodicals postage paid at Providence, Rhode Island. ISSN 1086-5462. POSTMASTER: Send address changes to *Medicine and Health/Rhode Island*, 235 Promenade St., Suite 500, Providence, RI 02908. Classified Information: RI Medical Journal Marketing Department, P.O. Box 91055, Johnston, RI 02919, phone: (401) 383-4711, fax: (401) 383-4477, e-mail: rimj@cox.net. Production/Layout Design: John Teehan, e-mail: jdtee@cox.net.



Commentaries

Doctor's Revenge

Mrs. S. was an 81 year old sprightly, intelligent, charming woman to whom I had to give the diagnosis of Parkinson's disease. She was not surprised, since her internist had previously told her that she was going to see me to confirm the diagnosis. After I gave her the news, I asked if she might be willing to be in a research study we were conducting. I explained the merits of the study, which was evaluating the effectiveness of **single positron emission computed tomography (SPECT)** scanning, an imaging technique, to diagnose Parkinson's disease. It was a benign sort of study, involving a single injection of a radio-labelled isotope for the scan, and then the scan. There was no long-term exposure to any drugs, no placebo arm, and only two office visits, one for the scan and one to see me in follow-up to check that no adverse events occurred. There was no real payoff for the patient, other than in one or two years, when the study was done, she'd get a picture of the dopamine content of her brain to confirm or refute my diagnosis. Her participation was almost purely altruistic. I explained this. "Oh, I'd love to. My father was a country doctor and he would have wanted me to do this. It sounds interesting, and if I can help others in the future, terrific."

When we called her to schedule her screening for the study, however, she refused. I was flabbergasted. The coordinator told me that Mrs. S. hadn't explained her reasons, so I called her, not to badger her, just to understand. At first she said that she didn't feel the sense of confidence in my staff that she had in me. I explained that the staff was fully competent, chosen by me, and that she wasn't doing anything at all risky. Furthermore, the staff were simply going to process forms. She backtracked. "Well, the truth is my two daughters told me not to do it." When I asked why they had her refuse, she told me that her husband had been badly treated and almost died in one of the famous hospitals in Boston and that they didn't want her to be involved in any medical visits that weren't absolutely mandatory. "Why don't you call my daughters and they'll explain?"

I called one of the daughters. She was a lawyer. She was smart, articulate and friendly. I learned that her mother was not *allowed*, for reasons unclear to me, to do anything without the two daughters' approval. The decision-making process involved one daughter making the decision and the other delivering and somehow enforcing it. It was a strange corporate decision-making structure. And neither of them lived in Rhode Island. I had no idea how it developed. The family story about the husband was that Mr. S was "tortured almost to death" in a Harvard hospital. As a result, "My mother isn't supposed to enter any hospital any time. Hospitals are bad places for people. I know this sounds irrational to you, but we don't want her entering any hospital unless it's absolutely necessary." I explained the study, the altruistic purpose, the safety, the safety features, the importance, and her mother's interest in the study.

"Yes, I'm sure everything you said is true, but my sister and I won't have her enter the hospital."

"Well," I said, "the imaging study is done in the radiology area, and she'll only be there about two hours. And while it's true that the scan would be in a hospital, many of these scans are done in freestanding facilities, so it's not *really* a hospital."

"It is a hospital and we don't want her there."

"Does she visit friends in the hospital if they're ill?"

"No, we don't want that."

"My office is in a hospital. She had to walk into Memorial Hospital to see me. Did you know that? Will she see me in follow-up?"

"I know you're in the hospital. We didn't have a choice. You're the expert in Parkinson's disease...Look, I know you think this is crazy, but this is our decision. I'll talk to my sister and if we change our minds we'll call mom."

So I lost Mrs. S. from our study. My interaction with Ms S., jr., had been quite friendly, albeit exasperating for me. I'm sure she didn't enjoy feeling like a crazy person either, and I was certain that she did feel

that way. She knew that her expressed views were irrational. I had no idea if Mrs S. would return to see me. I would have missed seeing her again. A few weeks later I got a call from her, out of the blue.

"Dr. Friedman, I hate to do this, but my daughters say I have to get a second opinion and I don't want to do this behind your back."

"I appreciate your calling. I don't mind your getting another opinion. I sometimes recommend them myself, but only when I'm unsure of either a diagnosis or a treatment, or if I sense that the patient is very unsure. In your case there is nothing unusual, but I'm glad you asked for my input. Do you want to go to New York or Boston?" She behaved as if she could have been an aunt of mine.

She didn't want to travel so I gave her names of the PD specialists I like in Boston. "I think you'll like Dr. X, best, because he's the nicest, but he's at the hospital that your husband almost died in. Maybe I should also give you a name at Massachusetts General Hospital. I'm certain your daughters will want you to see someone there."

"Why?"

"Because it's the most famous hospital in Boston."

"My daughters are more sophisticated than that."

"We'll see."

"But, Mrs S., when you see one of the doctors in Boston, you have to bring your daughters with you."

"That's a great idea...but they might be busy. Maybe I'll bring my husband instead."

"No, Mrs. S.. You **HAVE** to bring your daughters. Bring your husband too if he wants to come, but it's your daughters who want the second opinion, so make them come with you. They think you need a second opinion when you don't. They want you to travel to Boston, which you don't want to do. You're doing this purely for them. If they want you to do this so badly, make them take some responsibility for it"

I was immensely pleased with myself. I thought I was very clever. My patient and I would get "back" at these imperious daughters by not only following their instructions but soliciting their help so that one or both would have to miss a day's work and travel to Boston.

My patient understood the ploy. She laughed. "Oh, Dr. Friedman, I like you. I'll be seeing you in two months."

— JOSEPH H. FRIEDMAN, MD

Mumps, Branks and Other Impediments

In an ancient text called *Epidemics*, Hippocrates [460-377 BCE] described a newly encountered disease as follows: “In Thasos, during autumn, about the time of the equinox...a few patients suffered from ardent fevers and no deaths. Many had swellings beside one ear, or both ears, in most cases unattended by fever so that confinement to bed was unnecessary...and in all, the swelling subsided without causing harm. The sufferers were mainly youths. Few women were attacked. Soon after in some cases, transient but painful inflammations in one testicle or in both, sometimes accompanied by fever.”

What, in the northern Aegean island of Thasos, was Hippocrates describing? Clearly, a non-lethal, communicable disease, mainly afflicting male youth, which caused acute swellings at the angle of the jaw just anterior to the ears, and sometimes transient but painful swelling of the testicles. In his experience, it was a mild disease with no significant mortality or untoward complications. This clinical description, some 24 centuries ago, is the first mention of a disease of childhood which today is known as mumps.

Mumps, easily identifiable by its characteristic inflammation and swelling of the victim’s salivary glands [called the parotids] located at the angles of the jaw, was also described in the early Chinese medical literature.

By the Middle Ages in Europe, mumps had become a common, almost universal, affliction of children. And while the other airborne communicable diseases of childhood [including smallpox, measles, rubella, diphtheria and influenza] tended to be indiscriminately lumped together in that vague category called “the fits, fluxes and fevers”, mumps stood apart because of its essentially benevolent course and distinctive facial swellings.

The disease was called by many names. The word *mump*, of Saxon origin, defined a sulking individual who mumbled his words. And since children burdened with mumps appeared to be sulking because of their facial swelling and their difficulties in chewing and articulating words, the word *mumps* seemed appropriate. But knowing the pedantic nature of medieval physicians, unnecessarily complex, Latinized names were then appended to the illness, names such as parotitis [inflammation of the parotid salivary gland], *cynanche parotideae* [a sore throat involving the parotids] and even *mumpsisimus*.

In medieval England yet another street name was given to this disease: amongst the unlettered it was called the branks. The brank, originally, had been an iron device placed by municipal officials over the head of a miscreant accused of gossip, excessive scolding or idle chatter. In the words of a 1665 document, “It is the punishment which magistrates do inflict upon chiding and scolding women.” The heavy, cage-like instrument, sometimes called a “scold’s bridle”, was commonly employed in Scottish and English municipalities through the 18th Century. The typical branks contained a plate or bridle which was inserted into the mouth of the offender thus effectively preventing her from talking during the interval of punishment

[“nor is it taken off until after the party begins to show external signs of humiliation and amendment.”]

Branks were employed as punishment for gossiping women, but also for men who were blasphemers, railers or chattering paupers.

The iron branks did not accompany the early settlers to New England although other forms of civil punishment – the pillory, the wooden stocks, the whips, the ducking stools – all survived into the New World.

For the English and Scottish, not schooled in scholastic Latin, the appearance of mumps reminded them of their forensic heritage with the branks; and so, in the numberless villages of the British Isles, the disease came to be known, also, as the branks. The parish documents of 17th Century England, called the Bills of Mortality, rarely mentioned mumps or branks since it was not lethal as were its companion diseases of the pre-adult life such as measles, smallpox and diphtheria.

Mumps is one of the many diseases of viral origin which are now considered to be universally distributed since, by the early 20th Century, human commerce had apparently touched every corner of the globe. Yet this is not quite accurate. In 1943, the American and Canadian governments decided to construct a major roadway from the lower states to Alaska as a means of facilitating the movement of troops protecting the Alaskan territory against Japanese invasion. [In 1942 the Japanese army had already occupied a small island in the Aleutian Islands, an archipelago extending to the southwest of Alaska.]

The construction teams, toiling over what would eventually be called the Alcan Highway, encountered a number of isolated Inuit villages inhabited by natives who had never been previously exposed to the virus of mumps. It did not take long before one of the construction gang had unknowingly transmitted this virus to a totally vulnerable population. Entire villages took ill—the children, the adults, even the elderly—since the virus had been new to all.

Mumps had been one of those inevitable diseases affecting all who ventured from infancy to adolescence. It was part of the rite of passage until 1967 when a vaccine had been devised which was effective in about 80-90% of those inoculated. Before the deployment of the vaccine, this nation recorded over 250,000 cases of mumps per year. After the vaccination programs were in effect, fewer than 300 cases were witnessed per year. In Rhode Island, for example, there have been no cases since early 2004.

But as the vaccination programs, worldwide, relaxed and as many children remained unvaccinated principally for religious reasons, an increasingly susceptible population emerged. By 2006 major epidemics of mumps had materialized in many east European countries as well as numerous college towns in Iowa and Kansas. To paraphrase John Curran, the condition upon which God hath given good health to man is eternal vigilance.

– STANLEY M. ARONSON, MD

Medical Education at Brown Medical School

Philip A. Gruppuso, MD

Brown Medical School is in a transition period, the start of which was marked by the appointment of Eli Y. Adashi, MD, as Dean of Medicine and Biological Sciences in January of 2005. I had the good fortune to be recruited by Dean Adashi to the position of Associate Dean for Medical Education about one year ago. At that time, the medical school initiated a process of comprehensive curriculum redesign that will span all four years of medical education. The first phase of the redesign process, to reorganize and integrate the pre-clerkship curriculum, came to fruition on August 21 when the Class of 2010 arrived for orientation. This class will experience an integrated medical sciences course during their first semester that will broadly encompass the scientific foundations of medicine. At the same time, our pre-clerkship Doctoring course will begin its second year, its first as a fully functional "fundamentals of clinical practice" course that will span both of the pre-clerkship years.

As the individual charged with overseeing these curricular changes, I relish the opportunity to provide Rhode Island's

medical community with a glimpse of where we are and where we are going. As is evident from our report on the Class of 2006, our starting point is an accomplished medical student body that continues to enjoy the opportunities afforded by outstanding post-graduate training programs. We undertake the curriculum redesign process with aspirations that encompass both the most fundamental skills and abilities associated with medical training and areas outside the traditional bounds of a medical education program. Through collaborations with the Department of Nursing at Rhode Island College and the Central Rhode Island Area Health Education Center, we hope to address issues of interdisciplinary cooperation within the health care system and other aspects of our students' professional development. We intend to take advantage of the broad range of expertise represented by our faculty, from science and technology studies to the most basic of the basic sciences, as exemplified by our faculty's research on fundamental mechanisms of aging. We aspire to train physicians in the science and art of medi-

cine while also promoting scholarship with an ultimate goal of nurturing and promoting the creativity and leadership qualities within our students.

I wish to thank those who contributed to this annual issue of *Medicine & Health/Rhode Island* devoted to the subject of medical education. I appreciate the privilege of working with them as colleagues in medical science and education and I will take advantage of this opportunity to express my appreciation for the commitment they have made to the education of Brown medical students.

Philip A. Gruppuso, MD, is Associate Dean for Medical Education and Professor of Pediatrics and Professor of Molecular Biology, Cell Biology and Biochemistry (Research).

CORRESPONDENCE:

Philip A. Gruppuso, MD
Brown Medical School
Box G-A218
Providence, RI 02912
phone: (401) 863-1618
e-mail: Philip_Gruppuso@Brown.edu



The Brown Medical School Class of 2006

Philip A. Gruppuso, MD, Rose Bell, and Janice Viticone

On May 28, 2006, 89 men and women received the Doctor of Medicine degree from Brown University. They represent the 32nd class of physicians graduated from our institution since 1975. Of the 2385 physician graduates of previous classes, approximately 350 (about 15%) are currently licensed to practice in Rhode Island.

The purpose of this article is to introduce the graduates of the Brown Med Class of 2006 to the physician community in Rhode Island, as many will be your future professional colleagues.

A PORTRAIT OF THE CLASS OF '06

Of the 89 graduates, 39 (44%) were men and 50 (56%) were women. The racial/ethnic composition of the class (Table 1) shows a higher proportion of students from Caucasian American backgrounds (48%) than the previous year (42%). Nineteen percent of the graduates are members of minority groups

underrepresented in medicine (13 African Americans, 3 Mexican Americans, and 1 mainland Puerto Rican) as defined by the Association of American Medical Colleges (AAMC). This number is the same as the 19% underrepresented minorities (URM) among last year's class. At present, the proportion of URM students among all four years of Brown medical students is 19%.

Twelve graduates are residents of Rhode Island. The Rhode Island students in this year's graduating class came from eight different communities in the state, with four students from Providence, two from Warwick, and one student each from Cranston, Cumberland, Exeter, Hope, Tiverton, and Washington. The high schools from which the students graduated also reflect this diversity: Bishop Hendricksen, Brookline, Concord, Exeter-West Greenwich, Garden City, Moses Brown, Mount St. Charles, South Kingstown, and Tiverton high

schools and Phillips Exeter Academy.

Forty-nine (55%) of the students in the Class of 2006 came to the medical school from Brown's Program in Liberal Medical Education (PLME). The second largest cohort of students (20 graduates, 22%) came through the combined Brown-Dartmouth Medical Education Program in which students spend their first two years of medical school at Dartmouth, and then transfer to Brown for the final two years.

The medical school entered into special agreements with postbaccalaureate premedical programs at Bryn Mawr College and Columbia University shortly after the PLME was inaugurated. Students from these programs decided upon a career in medicine after completing college. Typically, they engaged in other careers for several years prior to their application to medical school. The goals in establishing this route of admission were to maintain a rich diversity in the student

Table 1. Demographic characteristics of the Brown Medical School Class of 2006.

Sex		
Male	39	44%
Female	50	56%
Race		
Caucasian American	42	47%
Asian American	24	27%
African American	13	15%
Mexican American	3	3%
Other Hispanic	2	2%
Portuguese American	1	1%
Foreign National	4	5%
State of Residence		
California	9	10%
New York	17	19%
Rhode Island	12	14%
Massachusetts	7	8%
New Jersey	7	8%
Maryland	2	2%
Pennsylvania	3	3%
Connecticut	2	2%
Florida	4	5%
Illinois	5	6%
Indiana	2	2%
Missouri	2	2%
Oregon	2	2%
Tennessee	2	2%
Wisconsin	2	2%
Other States	6	7%
Other Countries	5	6%

Figure 1. Specialty Choices of the Brown Medical School Class of 2006

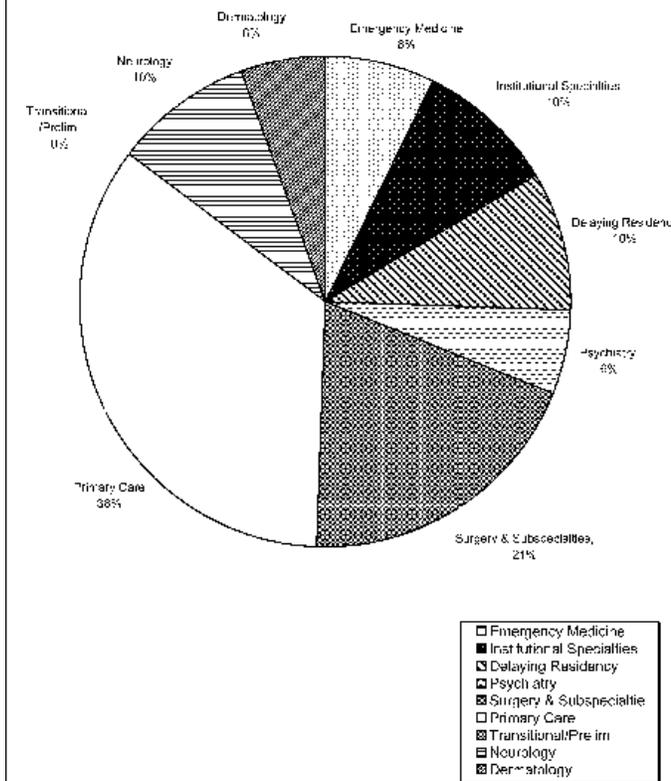


Table 2. Specialty Choices for Brown Medical School Classes of 2002–2006

Specialty Choice	2006		2005		2004		2003		2002	
	No.	%								
Primary Care, Total	34	38%	32	44%	41	47%	47	57%	44	59%
Internal Medicine, Total	17	19%	16	22%	20	23%	18	22%	21	28%
Categorical Med	0	0%	10	14%	15	17%	16	19%	16	21%
Primary Care	0	0%	6	8%	5	6%	2	2%	5	7%
Pediatrics	9	10%	4	5%	6	7%	11	13%	13	17%
Family Medicine	5	6%	7	10%	9	10%	11	13%	8	11%
Medicine/Pediatrics	1	1%	2	3%	4	5%	0	0%	2	3%
Obstetrics & Gynecology	2	2%	3	4%	2	2%	7	8%	1	1%
Surgery	9	10%	3	4%	4	5%	4	5%	4	5%
Surgical Subspecialties, Total	10	11%	6	8%	12	14%	10	12%	6	8%
Ophthalmology	2	2%	3	4%	5	6%	1	1%	2	3%
Orthopedics	4	4%	2	3%	3	3%	5	6%	1	1%
Neurosurgery	1	1%	0	0%	0	0%	1	1%	0	0%
Urology	1	1%	1	1%	1	1%	1	1%	2	3%
Plastic Surgery	0	0%	0	0%	1	1%	2	2%	1	1%
Otorhinolaryngology	2	2%	0	0%	23	26%	0	0%	0	0%
Dermatology	5	6%	5	7%	1	1%	1	1%	1	1%
Emergency Medicine	7	8%	3	4%	4	5%	4	5%	3	4%
Psychiatry	5	6%	4	5%	4	5%	3	4%	5	7%
Neurology	1	1%								
Transitional & Preliminary Medicine	0	0%	1	1%	2	2%	3	4%	2	3%
Institutional Specialties, Total	9	10%	9	12%	10	11%	4	5%	4	5%
Anesthesiology	2	2%	0	0%	3	3%	1	1%	1	1%
Pathology	1	1%	0	0%	0	0%	0	0%	0	0%
Rehabilitation Medicine	0	0%	0	0%	1	1%	0	0%	0	0%
Radiology & Rad Oncology	6	7%	9	12%	6	7%	3	4%	3	4%
Delaying Residency	9	10%	9	12%	0	0%	4	5%	4	5%
Not Entering Medicine	0	0%	0	0%	0	0%	2	2%	0	0%
Totals	89	100%	73	100%	87	100%	83	100%	75	100%

The data from previous years reported in this table have been revised from previously published reports to reflect the intended specialty choice of graduates rather than the type of program in their first postgraduate year. For example, a graduate with a first-year preliminary position in internal medicine and an advanced match in dermatology is reported now as dermatology, not internal medicine.

body by admitting students who were older and who had different academic and life experiences as well as rounding out the total class size to compensate for the expected attrition from the PLME. Five members (6%) of the class were postbaccalaureate students, three from Bryn Mawr College and two from Columbia University.

Among the remainder of the class, five students were part of the **Early Identification Program (EIP)**, three from Tougaloo College, one from Providence College, and one student from University of Rhode Island. EIP students are offered provisional admission to the medical school during their sophomore

year at their respective undergraduate colleges. Of the remaining graduates, four entered medical school through the MD/PhD program. These students were all awarded PhDs at graduation. The remaining 6 members of the Class of 2006 were admitted as advanced transfers.

The most common undergraduate area of concentration (48%) among the class members was the biological sciences (including subdisciplines such as biochemistry and neuroscience). Community health concentrators comprised 8% of the class. Science concentrators, taken together, accounted for 64% of all majors, while 12% of majors were in the arts

and humanities, and 24% in the social sciences. Fifteen students had dual areas of concentration as undergraduates.

Where They Are Going

Internal medicine remained the most frequently selected specialty (17 students, 19%). Pediatrics and surgery followed with 9 graduates (10%) choosing each of those specialties. Primary care includes the fields of internal medicine, pediatrics, family practice, medicine/pediatrics, and obstetrics and gynecology. (Figure 1)

The actual number of graduates who will eventually practice primary care after completing their graduate medical education will undoubtedly be smaller

Table 3. Brown Medical School MD Class of 2006 Residency Positions

Name	Facility	Affiliated Medical School	Specialty
Myron Allukian	Hospital of the University of Pennsylvania	University of Pennsylvania School of Medicine	Surgery
Alexander Amby	Memorial Hospital of Rhode Island	Brown Medical School	Family Practice
Kathy Anderson	University of Hawaii	John A. Burns School of Medicine, University of Hawaii	Pediatrics
Alka Basil	McGaw Medical Center	Feinberg School of Medicine Northwestern University	Internal Medicine
Stephanie Beall	University of California University of California -	San Diego Medical Center San Diego School of Medicine	Ob/Gyn
Robert Becher	Wake Forest Baptist Medical Center	Wake Forest University School of Medicine	Surgery
Andrew Beck	Stanford University	Stanford University School of Medicine	Pathology
Adam Bier	UCLA Medical Center	David Geffen School of Medicine, University of Calif - Los Angeles School of Medicine	Orthopedic Surgery
Vanessa Toney Bobb	New York Presbyterian Hospital	Weill Medical College of Cornell University	Psychiatry
Anthony Breu	Beth Israel Deaconess Medical Center	Harvard Medical School	Internal Medicine
Perry Brittis	Beth Israel Deaconess Medical Center St. Vincent's Hospital	Harvard Medical School University of Massachusetts Medical School	Radiology Internal Medicine (Prelim)
Hannah Awai	University of Connecticut Health Center	University of Connecticut School of Medicine	Pediatrics
Heidi Brown	University of Pittsburgh Medical Center	University of Pittsburgh School of Medicine	Ob/Gyn
Parag Butala	Mt. Sinai Hospital	Mt. Sinai School of Medicine	Surgery
Emily Caro-Bruce	Swedish Medical Center	University of Washington School of Medicine	Family Practice
James Carroll	University of Massachusetts Medical School	University of Massachusetts Medical School	Surgery
Charles Chan	SUNY at Stony Brook	State University of New York - Stony Brook	Orthopedic Surgery
Jeffrey Cheng	Mt. Sinai Hospital	Mt. Sinai School of Medicine	ENT
Grant Chu	UCLA Medical Center	David Geffen School of Medicine, University of California - Los Angeles School of Medicine	Internal Medicine
Erica Chung	University of California - San Francisco School of Medicine University of California - San Francisco School of Medicine		Pediatrics
Christine Combs	Brown University Internal Medicine Residency	Brown Medical School	Internal Medicine
Keith Corl	Rhode Island Hospital	Brown Medical School	Emergency Medicine
Antonio Cruz	Rhode Island Hospital Roger Williams Medical Center	Boston University School of Medicine	Internal Medicine (Prelim)
Gregory Dadekian	Rhode Island Hospital Yale-New Haven Hospital	Brown Medical School Yale University School of Medicine	Dermatology Internal Medicine Primary
Geoffrey Douglas	David Grant Medical Center Program	David Grant Medical Center Program	Surgery
Stephen Flynn	Children's Hospital of Philadelphia	University of Pennsylvania School of Medicine	Pediatrics
Katja Goldflam	Brigham & Women's Hospital	Harvard Medical School	Emergency Medicine
Shayla Graham-Brock	Lehigh Valley Hospital	Pennsylvania State University College of Medicine	Family Practice
Nicole Grenier	Rhode Island Hospital Brown University Internal Medicine Residency	Brown Medical School Brown Medical School	Dermatology Internal Medicine (Prelim)
Jonathan Grossberg	Rhode Island Hospital Rhode Island Hospital	Brown Medical School Brown Medical School	Neurosurgery Surgery (Prelim)
Anna Haemel	University of Wisconsin Hospital & Clinics	Univ of Wisc School of Medicine and Public Health	Medicine-Dermatology
Allan Hansen	University of California - San Diego Med Center Scripps Mercy Hospital	University of California - San Diego School of Med University of California - San Diego School of Med	Emergency Medicine Internal Medicine (Prelim)
Amanda Irmen	National Naval Medical Center	National Capital Consortium	Pediatrics
Beverly Johnson	New York Presbyterian Hospital	Weill Medical College of Cornell University	Internal Medicine - Primary
Christopher Jue	Brown University Internal Medicine Residency	Brown Medical School	Internal Medicine
Edward Jung	NYU School of Medicine Washington Hospital Center	NYU School of Medicine Georgetown University School of Medicine	Radiology Internal Medicine (Prelim)
Woojin Kim	Cedars-Sinai Medical Center	David Geffen School of Medicine, UCLA School of Medicine	Surgery
Monica Kumar	Keck School of Med of the Univ of So. California Brown University Internal Medicine Residency	Keck School of Med of the Univ of So. California Brown Medical School	Emergency Medicine Internal Medicine (Prelim)
Felicia Kuo	University of Massachusetts Medical School	University of Massachusetts Medical School	Psychiatry
Andy Lai Internal	University of California - San Francisco School of Medicine California - San Francisco School of Medicine		University of Internal Medicine- Primary

Table 3. (cont.)

Jennifer Lee	Massachusetts General Hospital Lahey Clinic Internal	Harvard Medical School Tufts University School of Medicine	Anesthesiology Medicine (Prelim)
Jason Lewis	Massachusetts General Hospital Brown University Internal Medicine Residency	Harvard Medical School Brown Medical School	Anesthesiology Internal Medicine (Prelim)
Onna Lo	Sutter Medical Center	Univ of California-San Francisco School of Medicine	Family Practice
Mohsin Malik	Robert Wood Johnson Medical School Brown University Internal Medicine Residency	University of Med and Dentistry of New Jersey - Robert Wood Johnson Medical School Brown Medical School	Dermatology Internal Medicine (Prelim)
Jyothi Nagraj Marbin	Univ of California - San Fran School of Medicine	Univ of Calif - San Francisco School of Medicine	Pediatrics-Primary
Akanksha Mehta	Rhode Island Hospital Rhode Island Hospital	Brown Medical School Brown Medical School	Urology Surgery (Prelim)
Yasmin Metz	New York Presbyterian Hospital	Weill Medical College of Cornell University	Internal Medicine
Kimberly Miller	University Health Center of Pittsburgh Western Pennsylvania Hospital	University of Pittsburgh Medical Center Temple University	Ophthalmology Transitional
Christine Montross	Brown University Psychiatry Residency	Brown Medical School	Psychiatry
Fernando Moreno	Jamaica Hospital Medical Center	Mt. Sinai School of Medicine	Family Practice
Katherine Moreno	University of Washington	University of Washington School of Medicine	Surgery (Prelim)
Jeffrey Ogbara	Hospital of the University of Pennsylvania	University of Pennsylvania School of Medicine	Internal Medicine
Urvi Pajvani	Strong Memorial Hospital University of Illinois College of Medicine	Univ of Rochester School of Medicine and Dentistry University of Illinois College of Medicine	Dermatology Internal Medicine (Prelim)
Andrea Parada	Hospital of the University of Pennsylvania University of Texas Medical Branch - Galveston	University of Pennsylvania School of Medicine University of Texas Medical Branch - Galveston	Radiology Transitional
Charles Park	University Hospital of Cincinnati	University of Cincinnati College of Medicine	Surgery
Stanley Pelosi	Mt. Sinai Hospital	Mt. Sinai School of Medicine	ENT
Leslie Pham	University of Iowa Hospitals & Clinics Presbyterian Medical Center	University of Iowa Carver College of Medicine University of Pennsylvania Health Systems	Ophthalmology Transitional
Michael Pirozzi	University of Utah Affiliated Hospitals	University of Utah School of Medicine	Internal Medicine
Jesse Ritvo	Fletcher Allen Health Care	University of Vermont College of Medicine	Family Medicine
Theresa Ross	Naval Medical Center - San Diego	Naval Medical Center - San Diego	Internal Medicine
Priya Sateesha	Mt. Auburn Hospital	Harvard Medical School	Internal Medicine- Primary
Leah Scherzer	St. Christopher's Hospital for Children	Drexel Medical School	Pediatrics
Cheryl Shannon	University of Utah Affiliated Hospitals	University of Utah School of Medicine	Internal Medicine
Shirin Sioshansi	New England Medical Center John Peter Smith Hospital	Tufts University School of Medicine Univ of Texas Southwestern Medical Center at Dallas Southwestern Medical School	Radiation-Oncology Transitional
Erin Smith	Harbor UCLA Medical Center	University of California - Los Angeles Medical School	Emergency Medicine
Hilary Smith	Children's Hospital of Pittsburgh	University of Pittsburgh School of Medicine	Pediatrics
Sarah Squire	Wake Forest Baptist Medical Center East Tennessee State University Program	Wake Forest University School of Medicine East Tennessee State University James H. Quillen College of Medicine	Radiation-Oncology Internal Medicine (Prelim)
Colin Stack	Beth Israel Deaconess Medical Center	Harvard Medical School	Emergency Medicine
Erin Teeple	Rhode Island Hospital	Brown Medical School	Orthopedic Surgery
Rebecca Traub	New York Presbyterian Hospital Program New York Presbyterian Hospital	Columbia Univ College of Physicians and Surgeons Columbia Univ College of Physicians and Surgeons	Neurology Internal Medicine (Prelim)
Stephanie Tuttle	Walter Reed Army Medical Center	National Capital Consortium	Psychiatry
Uzoma Ukomadu	Martin Luther King Jr. Drew Medical Center	Charles R Drew University of Medicine and Science	Orthopedic Surgery
Snigdha Vallabhaneni	University of California - San Francisco	Univ of Calif - San Francisco School of Medicine	Internal Medicine
Simmy Varghese	Oregon Health & Science University	Oregon Health & Science University	Internal Medicine
Daniel Vazquez	University of South Florida College of Medicine	University of South Florida College of Medicine	Surgery (Prelim)
Ann Walling	Cambridge Hospital	Harvard Medical School	Psychiatry
Melanie Watts	Brigham Women's Hospital	Harvard Medical School	Emergency Medicine
Cathy Clarke Wells	Beth Israel Deaconess Medical Center Griffin Hospital	Harvard Medical School Yale University School of Medicine	Radiology Internal Medicine (Prelim)
Cyrus Yau	Univ of Medicine and Dentistry of NJ - Newark	University of Medicine and Dentistry of New Jersey Newark	Med/Peds
Elizabeth Yu	Univ of Calif-San Diego School of Medicine	Univ of California-San Diego School of Medicine	Pediatrics

Table 4. Where Graduates are Going for PGY1 Residency

State	Number	%
California	16	18%
Connecticut	3	4%
District of Columbia	1	1%
Florida	1	1%
Hawaii	1	1%
Illinois	2	2%
Massachusetts	12	14%
Maryland	2	2%
North Carolina	1	1%
New Jersey	1	1%
New York	8	9%
Ohio	1	1%
Oregon	1	1%
Pennsylvania	9	10%
Rhode Island	12	14%
Tennessee	1	1%
Texas	2	2%
Utah	2	2%
Vermont	1	1%
Washington	2	2%
Wisconsin	1	1%
Students delaying residency	9	10%
Total	89	100%

than the 38% reported here. More importantly, data from the past 5 years (Table 2) has shown a steady decline in the rate at which our graduates choose primary care disciplines (59% in 2002 compared to 38% this year). We now approximate the national average for this statistic, as we do for all of the specialty choices that our students make (comparison data from the National Residency Matching Program¹). One statistic of note is that this year, as was the case last year, a significant proportion of our graduates (10%) chose to delay residency.

The reasons cited were the opportunity for a research year for three students, moving on to a consulting position in one case and personal reasons in the remaining cases.

As many physicians in Rhode Island know, Brown Medical School has long emphasized a commitment to primary care. However, as the medical school and its affiliates have developed and grown, our students have been exposed to a broader range of career options. This, combined with our students' ability to compete for competitive residencies has apparently led to a shift in their career choices. The administration of Brown Medical School does not consider this to be problematic but, rather, an indication of the further development of our institution.

The residency program destinations for the individual members of the Class of 2006 are shown in Table 3. The destination states for our graduates are shown in Table 4. Of the 80 graduates who will enter residency training next year, 12 graduates matched with Brown-affiliated residency programs. California is the most popular state for residency, becoming the home for 16 of our graduates next year. Massachusetts will be home during residency training for an additional 12 graduates.

Conclusion

The residency choices of the Brown Medical School Class of 2006 presents a picture that, in the aggregate, is similar to the choices made by medical students nationally. The proportion of Brown medical graduates entering primary care residencies now approximates the national rate for all US medical school graduates, a decline of more than a third since 2002. An examination of the programs at which our graduates matched shows a high rate of success that our students have in securing highly competitive post-graduate training positions.

References

1. National Resident Matching Program 2006 Match Data (obtained at <http://www.nrmp.org>. Accessed June 15, 2006.)

Philip A. Gruppuso, MD, is Associate Dean for Medical Education and Professor of Pediatrics and Professor of Molecular Biology, Cell Biology and Biochemistry (Research).

Rose Bell is an Executive Assistant to the Associate Dean for Medical Education,

Janice Viticonte is a senior secretary in Student Affairs.

All are with the Brown Medical School.

Correspondence:

Philip A. Gruppuso, MD
Brown Medical School
Box G-A218
Providence, RI 02912
Phone: (401) 863-1618
E-mail: Philip_Gruppuso@Brown.edu



Doctoring: Clinical Skills Teaching in the 21st Century

Alicia D. Monroe, MD

Myriad forces are re-shaping health care at the beginning of the 21st century. Eroding physician-patient relationships,¹ efforts to close breaches in health care quality and safety,^{2,3} an aging and increasingly diverse population, an obesity epidemic, growing numbers of uninsured and underinsured, and skyrocketing health care costs present important challenges to medical educators seeking to train altruistic, competent, and compassionate physicians. Over 99 million Americans have a chronic illness, and despite significant expenditures on medical services, many patients do not receive effective management for these conditions.⁴ The quality gaps are more pronounced among patients from racial and ethnic minority groups.⁵ Health systems interventions (e.g., teamwork training, using evidence-based guidelines to direct treatment, implementing electronic health records and informational systems, enhancing provider-patient partnerships, and expanding patient education programs) are deemed critical to quality improvement,^{6,7,8,9} patient safety¹⁰ and to eliminating disparities.¹¹ Physicians in the 21st century must not only be knowledgeable and skilled in the science and art of medicine, but be better prepared to actively collaborate with their patients, and work collegially with multidisciplinary teams.

Brown Medical School is redesigning clinical skills teaching for first and second year students. Doctoring is a two-year, required course designed to teach the knowledge, skills, attitudes and behaviors of the competent, ethical, and humane physician. Doctoring combines instruction and assessment in medical interviewing, physical examination, medical ethics, cultural competence and professional development using an educational paradigm that models interdisciplinary teaching and collaboration, and promotes patient-centered care, reflection, teamwork, and teacher-learner partnerships. Doctoring course leaders have engaged in ongoing collaboration with basic science leaders (e.g., in human morphology, physiology, biochemistry, micro-

biology, and pathology) to maximize student learning through synchronization and integration of Doctoring content with basic science content. Doctoring was launched in September 2005 and trained 72 first year BMS students in 2005-06 and will train 164 first and second year students in 2006-07.

OVERVIEW OF THE DOCTORING COURSE CONTENT

Doctoring utilizes the biopsychosocial model to help students recognize the interaction between biologic, social and psychological factors in disease and illness, as well as the social determinants of health constructs that bring public health perspectives to the bedside. Students receive instruction in culturally competent communication strategies alongside evidence-based prevention and treatment strategies. Students learn motivational techniques to gather information about patient's beliefs and preferences, building trust and enhancing patient-engagement in treatment planning and follow-through.

In year one, Doctoring guides students through the first steps of their transformation from citizen-patients to physician healers. Novice students begin to acquire a deeper understanding of roles and responsibilities of physicians, the privilege of learning in the clinical environment, and the standards of professional behavior including the importance of maintaining confidentiality and professional boundaries. Students are introduced to the principles and goals of teamwork, and how to apply these principles in classroom and clinical settings. Students appreciate the contribution of effective physician-patient relationships in delivering high quality patient care, and in promoting patient satisfaction and follow-through with recommended therapy. The first year focuses on basic communication skills including the patient-centered medical interview, behavior change counseling, oral case presentation, and written case presentation. Students are introduced to current issues in aging, trends in chronic illness, nursing home use and disability, and to the multidisciplinary team

approach to medical care. Students explore personal beliefs and biases while gaining appreciation of explanatory models of illness and the role of poverty, race, and ethnicity on health and health care. Case discussions are used to increase student awareness of factors contributing to cross-cultural clashes, and to teach skills and strategies to reduce misunderstandings. Clinical correlation sessions reinforce basic science concepts by demonstrating the relevance of science to clinical care. A patient-centered approach to the physical exam teaches appropriate communication with patients during the examination, and respect for modesty and personal space alongside basic examination techniques.

Doctoring in year two emphasizes mastery of the complete physical examination, advanced physician-patient communication skills (e.g., adolescent interview, informed decision making, end of life discussions, discussing medical errors, and communicating risk), critical thinking/clinical problem solving; written communication skills; prevention, selected specialty exams; cultural competence (e.g., the bilingual interview, working with special populations); and professional development (e.g., physician impairment, humanism in medicine, the business of medicine and exploring specialty choices).

TEACHING METHODS OF THE DOCTORING COURSE

The course structure involves two main components: 1) didactic/small group skill instruction and reflective learning; 2) community-based physician mentoring and skill practice. Students are assigned in groups of eight to small group faculty teams, and individually to community-based mentors. The interdisciplinary small group faculty teams consist of a physician and a social or behavioral specialist (e.g., a psychologist, a social worker, or an anthropologist). These teams facilitate small group discussion and model the value of interdisciplinary teaching and collaboration in education and health care in real-time for students. Small group faculty teach com-

munication and clinical skills, help students apply curriculum content, encourage reflective learning, and evaluate students emerging clinical and professional development competencies. Doctoring integrates reflective writing assignments, “field notes” with students experiences in medical interviewing, physical diagnosis, cultural competence and medical ethics to promote professional development and humanism.

COMBINED DIDACTIC/SMALL GROUP DISCUSSION/SKILL DEVELOPMENT SESSIONS

These occur about one-half day per week for 3-4 hours. Students complete assigned readings in preparation for the sessions, which focus on acquisition of knowledge, skills, attitudes and behaviors essential for competent practice of patient-centered medicine. Students begin the afternoon with a one-hour interactive didactic session taught by an interdisciplinary group of clinical and basic science faculty. New content/skills introduced in these sessions include communications skills, physical exam skills, skills for applying basic science to clinical medicine, professional development content and skills, cultural competence skills and biomedical ethics. Following the didactic sessions, students actively practice/hone new skills in groups of eight under the supervision of the small group faculty leaders (a physician faculty member and a social/behavioral sciences faculty member). The small group faculty guide students in developing their medical interviewing, physical exam skills, counseling skills, oral and written presentation skills, and clinical problem-solving using modeling, feedback, support and redirection. Small group faculty provide feedback on students’ assigned field notes (see below) and promote reflective learning to promote students’ professional and personal growth. Students’ skills are assessed by faculty observation and **objective structured clinical exams (OSCEs)**.

Continuity Experience with Physician Mentors

Students spend one day per week with a physician mentor in an office or hospital setting. Physician mentors guide students as they practice the skills they learn in didactic sessions. Each mentor session has

defined goals that link this component into the overall goals of the course. The continuity experience in a mentor’s practice enables students to form relationships with patients, and see the clinical presentations of common diseases and to observe outcomes of interventions for chronic and acute illnesses. The physician-mentor provides evaluative information on student’s mastery of professional development competencies required in the course. Students use **personal digital assistants (PDAs)** in community sites to document their clinical experience (e.g., number of patient contacts and mentor feedback) and to assist course leaders in assuring that all students receive a high quality learning experience.

Students are assigned in groups of eight to small group faculty teams, and individually to community-based mentors.

Field Notes

Self-reflection is integral to professional development. Students write weekly essays or “field notes” in response to structured questions in the syllabus that guide reflection on a salient topic, such as the development of interviewing skills, inspiring or difficult interactions with patients, or challenges of promoting behavior change in patients. Field notes link the campus and community-based components of the course. These notes promote reflection and growth supporting the development of “mindful” medical students.¹² Students are encouraged to write their notes as soon as possible after leaving their clinical site, recording the observations and activities. Field notes are submitted electronically to their small group faculty for review and comment. Field notes become an interactive process as students receive in-depth, thoughtful, and personalized feedback on their weekly notes from the physician and a social or behavioral scientist. Field note content remains confidential between teacher and student, which given the proper nurturing of the relationship, can potentially cre-

ate a “comfort zone” for deeper and more authentic self-reflection. The field notes document the students’ learning journey as teachers help students appreciate the cognitive, affective, personal and professional dimensions of their experiences

Teacher-learner partnerships

Forging respectful and dynamic teacher-learner partnerships in the Doctoring course has been both inspirational and challenging, but these partnerships have allowed the course to benefit from the collective wisdom and creativity of Brown faculty and students. Humility and transparency are lauded in patient care, but rarely find expression in the classroom. At the launch of this new course we held monthly town meetings to obtain feedback from students on the effectiveness of didactic sessions and small groups and to share best practices. Our learner-centered model of course design and clinical skills teaching sought to operationalize the style of interaction we want our students to use with patients. We utilized quality improvement methodology (plan, do, study, act) to refine our curriculum and made real-time alterations in content and sequencing during semester one. Students helped faculty to appreciate their preferences for receiving information, optimal sequencing and reinforcement of clinical skills and encouraged faculty to reinforce expectations and offer choices in assignments when appropriate. One outgrowth of the partnerships developed during year one of the Doctoring course is to formalize the role of students in curriculum development and teaching by creating our Student Teaching Academy. At the end of year one students were nominated by faculty based on their academic performance, clinical skills and professionalism to become members of the academy. Academy members will have formal roles in skills teaching, role modeling and ongoing curriculum enhancement.

Evaluation

Students must satisfactorily complete each component of the course to meet course requirements. Students’ communication skills, physical exam skills are assessed using observed interviews with real and standardized patients throughout each semester. Students must successfully complete an OSCE at the end of each

semester. OSCEs are considered to be on of the “gold standards” for the assessment of clinical skills. Brown medical students will be required to complete OSCE exams at the end of years one through three, as well as a national clinical skills exam that must be successfully completed for medical licensure. Students’ praise the community mentor component, their relationships with the small group faculty and the clinical correlation sessions. The course leaders look forward to working with small group faculty and students to hone course content and teaching strategies to effectively and efficiently achieve the course goals and objectives.

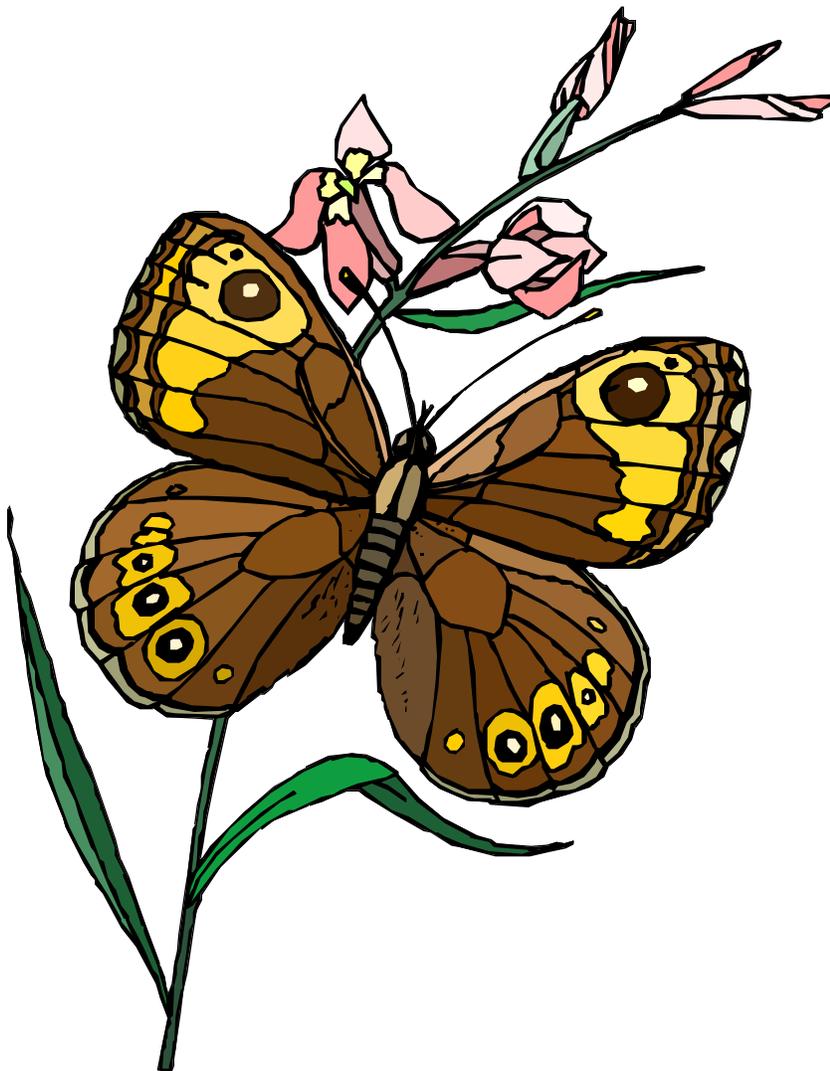
REFERENCES

1. Safran DG. Defining the future of primary care. *Ann Intern Med* 2003;138:248-55.
2. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Committee on Quality of Health Care in America. Institute of Medicine. Washington, DC. National Academy Press, 2001.
3. *To Err is Human: Building a safer health system*. Kohn L, Corrigan J, Donaldson M, eds. Washington, DC: Committee on Quality of Health Care in America, Institute of Medicine. National Academy Press; 2000
4. Institute for Health & Aging: University of California, San Francisco, for the Robert Wood Johnson Foundation. *Chronic Care in America: A 21st Century Challenge*, 1996.
5. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Smedley BD, Stith AY, Nelson AR, eds. National Academies Press, Washington, DC, 2003.
6. Renders CM, Valk GD, et al. Interventions to improve the management of diabetes in primary care, outpatient, and community settings. *Diabetes Care* 2001;24:1821-33.
7. Norris SL, Engelgau MM, Narayan KM. Effectiveness of self-management training in type 2 diabetes. *Diabetes Care* 2001;24:561-87. Review.
8. Callahan CM. Quality improvement research on late life depression in primary care. *Med Care*. 2001 Aug;39(8):772-84.
9. Von Korff M, Katon W, et al. Improving depression care. *J Fam Pract* 2001;50:E1.
10. Leape LL, Berwick DM. Five years after to Err is Human, what have we learned. *JAMA* 2005;293:2384-90.
11. Betancourt JR, King RK. Unequal treatment. *Public Health Rep* 2003;118:287-92.
12. Epstein RM. Mindful practice. *JAMA* 1999, 282:833-9.

Alicia D. Monroe, MD, is Professor of Family Medicine and Associate Dean for Minority Affairs, Brown Medical School.

CORRESPONDENCE:

Alicia D. Monroe, MD
 Memorial Hospital of RI
 111 Brewster St.
 Pawtucket, RI 02860
 e-mail: Alicia_Monroe@brown.edu



So What the Heck is an AHEC and What Does It Mean for Brown?

Arthur A. Frazzano, MD, MMS, and Robert M. Trachtenberg, MS

MISSION STATEMENT

The mission of AHEC of Rhode Island is to foster academic/training/community collaborations that benefit the public by improving the supply and distribution of a high quality, culturally sensitive, interdisciplinary work force that transcends barriers and supplies even the most vulnerable of people with the care they deserve.

It is a testament to Brown's commitment to preparing doctors to meet the challenges of the future that there is an Area Health Education Center in Rhode Island. Trends in Rhode Island mirror the changing cultural and ethnic diversity apparent across the United States. Socioeconomic barriers have assumed a position of pre-eminence as people of all cultures attempt to achieve comfort and safety for their families. Health care and the training of health care providers have become central to the sense of well being shared by our community.

In 1970, the Carnegie Commission recommended the development of a nationwide system of Area Health Education Centers. These centers were meant to improve the supply, distribution, diversity and quality of the health workforce, ultimately increasing access to health care in medically underserved areas. Funding followed with an act of Congress in 1972, and the job of forming academic-community partnerships that train health care providers in sites and programs that are responsive to State and local needs was initiated. This new agenda emphasized health career enhancement and recruitment programs for K-12 students.

AHECs link university health science centers with local planning, educational and clinical resources. This network provides multidisciplinary educational services to students, faculty and local practitioners, ultimately improving health care delivery in medically underserved areas.

The AHEC program is a long-term initiative, requiring major changes both in the traditional method of training medical and other health professions students and in the relationship between university health science centers and community health service delivery systems. It is this attention to the university/community interface that prompted former Interim Dean Richard Besdine to comment, "A medical school is incomplete without an AHEC." Continued support from Dean Eli Adashi has been crucial to AHEC's growth and success at Brown.

Today, 51 AHEC Programs and 215 affiliated AHEC Centers are operating in 46 States and the District of Columbia. Iowa, Kansas, North Dakota and South Dakota, and the Commonwealth of Puerto Rico do not have AHEC Programs or AHEC Centers. In a typical year, AHECs across the nation:

- Train 37,000 health professions students (17,000 medical students and 20,000 other health professions students) in community-based sites.
- Work with approximately 1,500 federally-funded community and migrant health center sites and other underserved area sites, 800 health departments and 180 National Health Service Corps sites.
- Provide health career enhance and recruitment activities of 20 hours or more to 42,000 students grade 9 to 12.
- Provide continuing education to 315,000 local health care providers.

Planning for the Rhode Island AHEC grant application began in 2002 and involved a coalition from academia, government and medicine. It was the first time such a broad group worked together to address the needs of the medically underserved in Rhode Island and was the foundation for the successful application, approved and funded in the

spring of 2004. This coalition set the standard for AHEC of RI and is at work today, setting the future agenda in an unprecedented collaboration. Participants include:

- Brown Medical School
- University of RI
- Salve Regina University
- Rhode Island College
- Community College of RI
- RI Hospital
- RI Department of Health
- RI Department of Human Services
- Rhode Island Health Center Association
- Providence Health Center Association
- Rhode Island Free Clinic
- Crossroads Rhode Island
- Family Care Center of MHRI
- Hospital Association of Rhode Island
- Rhode Island State Nurses Association
- Thundermist Health Centers
- State Sen. Elizabeth Roberts
- State Rep. Carol Mumford
- Office of the Lieutenant Governor

New members are being added regularly to strengthen the collaboration and increase the interdisciplinary expertise.

OVERVIEW AND ACCOMPLISHMENTS OF THE RI AHEC PROGRAM, 2004-PRESENT

In Rhode Island, the AHEC Program Office resides at Brown Medical School with community-based centers in Woonsocket (Northern RI AHEC), Cranston (Central RI AHEC), and, to be established in the fall of 2006, a center in Newport (Southern RI AHEC). The RI AHEC Program is well on its way to establishing itself as a vital infrastruc-

ture designed to provide recruitment, retention and continuing education strategies to the providers and the agencies which serve the most vulnerable of Rhode Island's citizens.

The RI AHEC network can act as a broker/convenor for academic health professions training programs, state agencies, and community-based organizations in their efforts to improve health outcomes for the citizens of Rhode Island.

In fiscal year 2005, the very first year of its existence, the statewide RI AHEC Program, with a small, hard working, dedicated staff, accomplished the following:

Provision of Training & Education for Providers

1. The Center for Bio-Preparedness and Emerging Pathogens and the Rhode Island Health Center Association was provided with funding for use in collaboration with the Center for Bio-Preparedness and Emerging Pathogens to conduct a series of workshops on bio-terrorism. The workshops provided an overview of the types of pathogens and the responses needed from workers at the health centers.
2. The RI Health Center Association was awarded over \$20,000 to provide continuing education to clinical and non-clinical staff at community health centers and other safety net providers. Topics were chosen through a survey involving 100 health professionals. Trainings to occur include: Triage for Nurses; Coding and Billing; Quality Improvement; and Risk Management for Practitioners.
3. Funding was awarded for a bus tour for Brown Family Medicine residents at Memorial Hospital of Rhode Island. The tour visited neighborhoods in Central Falls so that trainees might gain a better understanding of the barriers to care where their clients live and work.
4. The RI AHEC Program Office provided funding for the Office of Medical Faculty Affairs at Brown Medical School to sponsor a clinical

faculty workshop on "Doctoring at Brown – 2004."

5. The RI AHEC Program Office subsidized a percentage of the salaries and benefits of three employees of Brown Medical School in the planning and implementation of the new "Doctoring" course insofar as their duties related to educating students in providing services to underserved populations. Funding provided support for a physician educator and a program coordinator.

Scholarships for Health Professionals and Health Professions Students

1. The Providence Community Health Center was awarded scholarships for two physicians to attend the Harvard School of Public Health, Center for Continuing Professional Education Program: *Managing Ambulatory Health Care: A Program for Physicians in Community Health Centers*, an intensive four-day program designed for community health center physician-administrators.
2. The Rhode Island College Nursing Program received funding for staff to attend a two day conference, *Transforming Health Professional Education: Core Competencies, Microsystems and New Training Venues*. An interdisciplinary roundtable panel discussed developing a new approach to professional education and training.

Resource Augmentation for Existing Programs & Health Care Initiatives

1. \$10,000 was awarded to the Rhode Island Free Clinic for creation of a resource library. The library will be used by volunteer professionals and health professions students to access the latest information in health care, as well as serve as an interdisciplinary educational training site.
2. \$6,600 was granted to the Department of Family Medicine at Me-

morial Hospital of Rhode Island for three Electronic Medical Health Record licenses for use towards their implementation of electronic medical health records.

3. \$3000 was provided for the Eleanor Slater Hospital's Resource Library to upgrade the computer system so that residents, staff, and health professions students can access current health information.
4. \$16,742 was awarded to the Brown Medical School Family Medicine Clerkship Program in support of a longitudinal service-learning program in collaboration with Progreso Latino of Central Falls. This program incorporates community service into the medical school curriculum with a goal of increasing the number of culturally competent physicians choosing to practice in underserved areas.
5. \$7070 was awarded to the Rhode Island Health Center Association to provide a doctor in each community health center with the computer software "Up to Date." This software is designed to answer common clinical questions. The designated physicians are part of a pilot project to analyze the effectiveness of software on patient care and efficiency, and data collected will assist Central Rhode Island AHEC in assessing educational needs for primary care providers.
6. \$4000 was awarded to the **Dental Assistant Partnership Program (DAPP)**, a pilot project, which helps parents from low-income families enter the workforce as dental assistants. The funds helped purchase a complete dental operatory.
7. \$18,000 was awarded to the Center of Excellence in Women's Health at Women and Infant's Hospital to support the Women's Health Resource Center. The award was designed to increase staff time at the Women's Health Resource Center and to host a Cross-Training in Women's Wellness Conference, targeted at health service providers.

8. \$7,200 was awarded to Catherine Tantau, a consultant to Quality Partners of Rhode Island, to support an "Open Access Project," a method for assuring patients an appointment with the provider of choice at a date and time the patient chooses. The goals of Open Access are to reduce patient wait time, increase same-day access to care, and improve continuity of care.

In the aggregate, support provided by the RI AHEC in its first year totaled \$146,449.23. Beyond simply funding programs, the RI AHEC program has a great deal to offer Brown Medical School, other health professions training programs in Rhode Island, and the broader,

statewide community through its partnership enhancement activities, convener/broker role, and administrator of health promotion initiatives. RI AHEC seeks to build upon a long history of community-based health care and health promotion at Brown Medical School, build a stronger campus-community partnership, and further cement the compact between the medical school and the community to improve health outcomes and Rhode Island's overall public health.

The RI AHEC program is making its impact throughout the state, and, thanks to the support of Brown Medical School with the continuing commitment of Dean Adashi and the visionary words of Interim Dean Besdine, a comprehensive program is in place to improve ac-

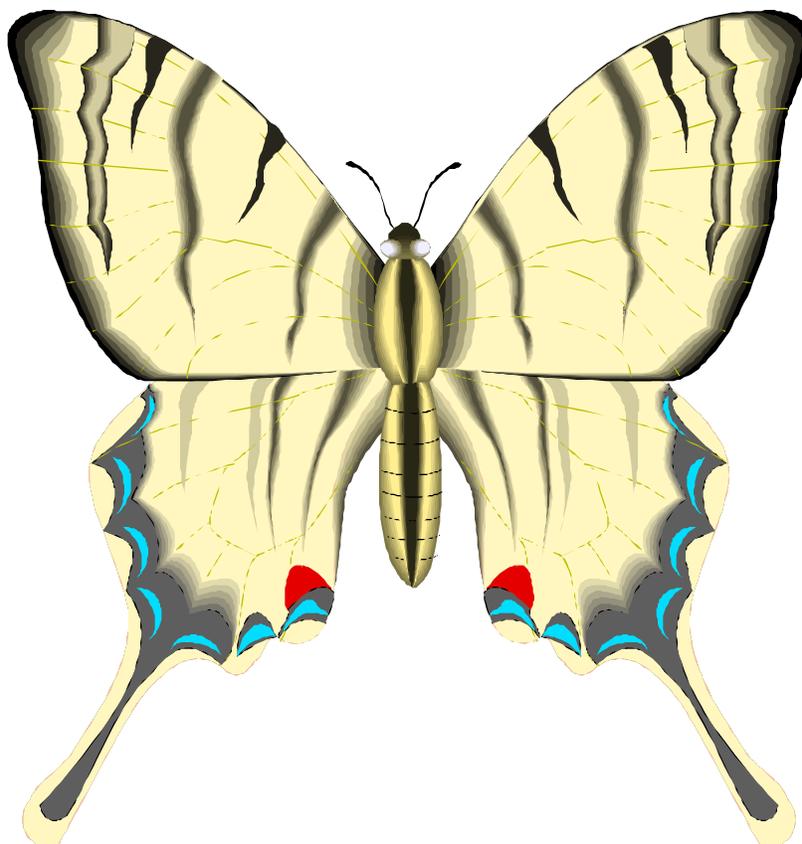
cess to high quality health care for the most vulnerable and underserved citizens in the Ocean State.

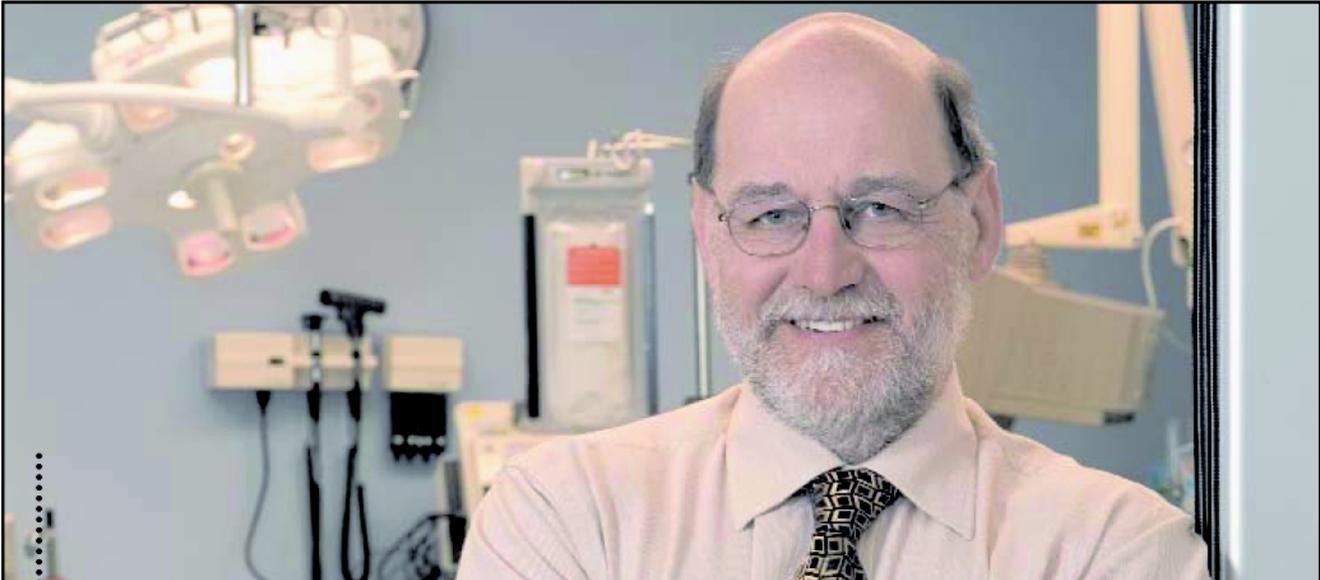
Arthur A. Frazzano, MD, MMS, is Associate Dean of Medicine (Clinical Faculty), and Director, AHEC of Rhode Island, Brown Medical School.

Robert M. Trachtenberg, MS, is Associate Director, AHEC of Rhode Island, and Clinical Teaching Associate in Family Medicine, Brown Medical School.

CORRESPONDENCE:

Arthur Frazzano, MD
Box G-A1
Providence, RI 02912
phone: (401) 863-3675
E-mail: Arthur_Frazzano@brown.edu





We'll be there for you tomorrow.

Why do Dr. Timothy Drury of South County Hospital in Wakefield and hundreds of other Rhode Island healthcare professionals choose ProMutual Group for their medical malpractice insurance needs today, tomorrow, and for their entire career?

- **We're in the business of protecting doctors** ... we aggressively defend our insureds! This philosophy has earned us one of the best jury verdict win ratios in the medical malpractice industry.
- **We help doctors *avoid risk***. We maintain the largest risk management staff in our area and pioneered such techniques as on-site office appraisals.
- **We have rock solid financials**. We are rated A- (Excellent) by A.M. Best Company.
- **Our doctors get dedicated customer service** from an agency force chosen for their knowledge and expertise of medical malpractice insurance.

Healthcare providers enjoy peace of mind knowing that their reputations are protected by the financial integrity of ProMutual Group. Their confidence has made us the second largest medical malpractice insurance provider in the state.

We offer a clear advantage. To find out more go to our web site or call one of our agents today.



Financial Integrity, Physician Loyalty

101 Arch Street, Boston, Massachusetts 02110 ■ 888-776-6888 ■ WWW.PROMUTUALGROUP.COM

Contact one of our Rhode Island agents:

John Tickner
Babcock & Helliwell
Wakefield ■ 401-782-1800

Dave Anderson
Lathrop Ins. Agency
Westerly ■ 888-596-2530

Charlotte Carignan
Mastors & Servant
East Greenwich ■ 401-885-5700

Joanne Peacock
AON Risk Services of RI
Providence ■ 401-331-7700

William Allen
Troy, Pires & Allen
East Providence ■ 401-431-9200

Hilda Barbosa
Starkweather & Shepley
East Providence ■ 401-435-3600

Steve Hickey
Hickey & Associates
Warwick ■ 401-467-6333

Anthony Paolino, Jr.
Paolino Ins. Agency
Providence ■ 401-421-2588



*Trusted Physicians,
Exceptional Technology*

Comfort

Open medical imaging designs in a soothing setting ensuring the calming, comfortable experience preferred by patients of all ages and sizes

Commitment

A commitment to quality care, the clarity of cutting edge technologies and the finest, fellowship trained physicians and technicians

Convenience

XRA Medical Imaging Centers are located at six locations throughout the state – Easy to find & Easy to Park

When you want the finest, most comfortable, and most convenient medical imaging, be sure to ask your doctor about our services:

- **Open and High Field MRI • CT Scan • Ultrasound • X-Ray • Bone Density • Fluoroscopy**
- **Mammography with Computer Assisted Diagnosis (CAD)**

www.xramedicalimaging.com

Cranston
401-943-1454
1150 and 1140
Reservoir Avenue

Johnston
401-351-1570
1524 and 1539
Atwood Avenue

Wakefield
401-792-9840
481 Kingstown Road

Middletown
401-842-0707
345 Valley Road

Education To Improve Interdisciplinary Practice of Health Care Professionals: A Pilot Project

Jane Williams, PhD, RN, Láura Vares, MA, and Matthew Brumbaugh, MSW

There is an urgent need for healthcare professionals to work together as a team. All too often, problems are not correctly diagnosed and plans for care are not effectively implemented because physicians, nurses and other healthcare professionals are not practicing as a team. In a joint project, Brown Medical School, The School of Nursing at Rhode Island College and the Rhode Island Area Health Education Center (AHEC) Network, the federally funded program dedicated to addressing health disparities by supporting innovative approaches to improving care, are creating a new model for education of healthcare professionals.

Quality in health care is dependent upon effective communication among professionals in different disciplines. Medical errors are frequently the result of a breakdown in communication. The Institute of Medicine's report, *To Err is Human: Building a Safer Health System* (2000)¹, states, "As many as 98,000 people die each year from medical errors that occur in hospitals. That's more than die from motor vehicle accidents, breast cancer and AIDS – making medical errors the fifth leading cause of death in this country." This is a far cry from Florence Nightingale's dictum: "It may seem a strange principle to enunciate as the very first requirement in a Hospital that it should do the sick no harm." [1859].

A recent *New York Times* article provides an example of the devastating effects of communication breakdown: "Inquiry Into Reporter's Death Finds Multiple Failures in Care" (Stout D., Saturday, June 17, 2006)² describes the report of an inquiry into the death of a journalist in Washington, DC. The journalist, who was found semiconscious on the sidewalk, had been beaten and robbed. However, because he was thought to be drunk, he was not treated for head injury. The report concluded that the journalist, David E. Rosenbaum, was "left unattended on a stretcher for far too long because nurses and doctors did not communicate well with each other and were slow to realize

that he was gravely injured."

Given the need for healthcare professions to practice as a team, there is increasing concern that educational programs are not adequately addressing this aspect of practice. It is likely that miscommunication, or the lack of communication, among health care professionals is due to the dearth of exposure and training that they have with one another during their schooling. Presently, students, for the most part, interact with other members of the team by chance rather than design. The same Institute of Medicine report noted: "Because medical training is typically isolated from the training of other health professions, people have not learned to work together to share authority and collaborate in problem solving."¹ To address these perceived needs, many are calling for schools of medicine, nursing, pharmacy and social work to include inter-professional practice in the curriculum.

Brown Medical School, the School of Nursing at Rhode Island College, and the Rhode Island AHEC Network launched the *Interdisciplinary Curriculum Development Pilot Program* during the summer of 2006. Two nursing students, Julia Clinker and Claire Rodriguez-Annoni, and two medical students, Matthew Brumbaugh and Zachary Ginsberg, participated in this pilot. The students were selected based on their written proposals. Associate Dean for Medical Education at the Brown Medical School, Dr. Philip Gruppuso, and the Interim Dean of the School of Nursing at Rhode Island College, Dr. Jane Williams, served as faculty advisors to the students. Láura Vares, Director of Continuing Education Programs for the Central Rhode Island AHEC (criAHEC) provided staff support. This project is self-funded, with each organization contributing funds for students' stipends and faculty and administrative support.

The goal of the project is to propose ideas for curricula that will foster the development of knowledge, attitudes and

communication skills essential for effective inter-professional practice in healthcare. While all aspects of health care benefit from a highly functional interaction among disciplines, this pilot focuses on three broad areas: patient safety, end of life care, and community health education. In addressing obstacles to delivery of care, the process included Rhode Island communities that have historically received inadequate health care.

The students researched the literature on inter-professional practice. Working jointly and with faculty advisors, the medical and nursing students investigated issues of perception and miscommunication that may interfere with the delivery of appropriate and timely care. They met with faculty, professionals, health care leaders, practitioner groups, and consumers in Rhode Island to gain insight into what contributes to poor communication and collaboration and into the characteristics of excellent practice. Furthermore, they explored existing models of inter-disciplinary programs, both on the educational and professional level, in order to learn from the experiences of others.

The student group met regularly to discuss ideas and formulate new and innovative joint learning experiences. The group spent the early phase of the project formulating questions about the nature of inter-professional education and practice and the goals and objectives of inter-professional education, as well as how best to design and implement curricula. From the outset, one of the fundamental questions asked by the group was: is there evidence that inter-professional education is effective? The consensus among educators and faculty is that inter-professional education should be an integral part of the complete educational experience, but is there evidence to support this perceived need? While the group continues to assimilate the results from their literature search, their preliminary review indicates that there *is* evidence to support the premise that additional collaboration among

healthcare professionals may improve patient care within a number of care settings.

One of the difficulties in assessing inter-professional education, or of any intervention that aims to improve professionals' collaborative abilities, is to evaluate and assess the effectiveness of the program. In the June 2006 issue of *The Journal of Interprofessional Care*, Stone relates that some of the difficulties in evaluating inter-professional education and practice stem from the multi-disciplinary nature of the concept. Because most educators and academics have backgrounds in one discipline, developing common methods to evaluate the effectiveness of programs that cut across domains and disciplinary "norms" can be difficult.³ One of the goals of the student group is to develop a tool that will assess the effectiveness of inter-professional curricula once it is implemented. In addition, the group hopes to evaluate how students' perceptions of other professions, as well as their own, may change due to their proposed curricula.

Another primary question asked by the group has been: when is the optimal time to introduce inter-professional education? In their search of the literature, the group discovered that there is no consensus on the best time for inter-disciplinary learning; there is no "best practice". Of the programs implementing interdisciplinary courses or projects, many introduce them in the preclinical stages, while others wait until students are in the clinical stages. Not satisfied with this either-or approach, the student group is developing a multi-tiered approach. As a result of their research and discussions with faculty at Brown and Rhode Island College, the group's ultimate goal is to introduce aspects of the inter-professional curricula at both the preclinical and clinical stages of students' education. While the group has not finalized its recommendations, the members envision a series of

inter-professional experiences spread through the pre-clinical and clinical continuum, consisting of opportunities through which medical and nursing students learn with, as well as learn from, each other.

Two nursing students and two medical students participated in this pilot.

There are numerous barriers to the implementation of curriculum content that bridges two historically separate educational cultures. Some professionals may fear that inter-disciplinary education could result in diminished professional identities and diminished professional autonomy. Between students of the various professions, there may be differences in age and level of preparation, as well as of perceived status. Added to these potential barriers are the very real logistical barriers: differing schedules, routines, and academic policies.^{4, 5} When considering scheduling a class involving medical and nursing students, even the issue of where to hold the class can become a point of lengthy discussion. Acknowledging these barriers, the student group has attempted to design a curriculum that will, with the support of Brown, Rhode Island College, and AHEC, be able to be implemented.

At the end of the summer, the group summarized their findings in a written report and oral presentations. They will put forth suggestions for curriculum content that will provide the direction for future work. It is our intent to expand the project to include more students, additional nursing programs in Rhode Island, and other health professions. Eventually, the goal is to create a model

for education toward effective inter-professional practice that can be adopted by all schools in the health professions.

In *Health Professions Education: A Bridge to Quality* (2003)⁶ the Institute of Medicine identified "interdisciplinary team building and collaboration" as one of the core competencies all health care professionals must demonstrate. The *Interdisciplinary Curriculum Development Pilot Program* is responding to that mandate. This valuable, innovative project has the potential to improve the education of health care professionals in Rhode Island and contribute to a similar change throughout the country.

Jane Williams, PhD, RN, is Interim Dean, School of Nursing, Rhode Island College.

Laura Vares, MA, is Director of Continuing Education for Central Rhode Island AHEC.

Matthew Brumbaugh, MSW, is a member of the Class of 2009, Brown Medical School.

REFERENCES

1. Institute of Medicine, *To Err is Human: Building a Safer Health System*. Washington, DC, National Academy Press, 2000.
2. Stout D. Inquiry Into Reporter's Death Finds Multiple Failures in Care, *New York Times*, June 17, 2006.
3. Stone N. Evaluating interprofessional education. *J Interprofessional Care* 2006; 20: 260-75.
4. Headrick LA, Wilcock M, Batalden B. Continuing medical education. *Brit Med J* 1998; 316:771-4.
5. McPherson K, Headrick L, Moss F. Working and learning together. *Quality in Health Care* 2001; 10(Suppl II):ii46-ii53.
6. Institute of Medicine, *Health Professions Education: A Bridge to Quality*, Washington, DC, National Academy Press, 2003.

CORRESPONDENCE:

Jane Williams, PhD, RN
Rhode Island College
600 Mt Pleasant Avenue
Providence, RI 02908
Phone: (401) 456-9608
e-mail:jwilliams@ric.edu



The Humble Fly: What a Model System Can Reveal About the Human Biology of Aging

Johannes H. Bauer, PhD, and Stephen L. Helfand, MD

What does an insect that feasts on one-week old bananas in your kitchen have to do with Alzheimer's Disease? Perhaps more than you would think.

About one hundred years ago, Thomas Hunt Morgan used old bananas to lure and trap fruit flies in his laboratory and set out to study them. These humble beginnings laid the groundwork for a plethora of discoveries that revolutionized modern science and medicine.¹ The early stages were innocent enough. The isolation of the first spontaneous mutants led to the discovery that genes were arranged in a linear order and the construction of the first chromosomal map. *Drosophila* genetic research took off with the discovery that x-rays can induce genetic mutations. With this tool in hand it was possible to generate thousands of mutant lines at will, while certain genetic tricks even allowed propagation of lethal mutations. These discoveries helped elucidate the genetics of heritable traits and genetic abnormalities. The effort to build accurate chromosomal gene maps culminated in the sequencing of the whole *Drosophila* genome in 2000. *Drosophila* was only the second multicellular organism whose genome was completely sequenced.²

After shedding light on the problems of genetics, the *Drosophila* model organism helped solve another fundamental biological mystery, that of the development of a fertilized egg into a fully functional adult animal. Using a forward genetic screening system, Nüsslein-Vollhard, Wieschaus, and Lewis identified the genes that govern embryonal development for which they received the Noble prize in 1995.³ Subsequent research established that the genes found in *Drosophila* have functional orthologs in other organisms, from single celled bacteria to complex multicellular animals, including humans. Different organisms are therefore not a consequence of completely different sets of genes, but of slightly different specialization strategies that confer altered functionalities to essentially the same class of genes. With this realization, *Drosophila*

became the model system of choice, not only for genetics and embryonal development, but also for the more complex traits of higher organisms. Immune function, circadian rhythm, cardiac function, sleep and even memory have been established as promising areas of *Drosophila* research with implications for human health research. In recent years, the investigation of aging has been greatly accelerated thanks to the use of *Drosophila*.

The fruit fly *Drosophila melanogaster* is perfectly suited as a model organism for aging research.

The fruit fly *Drosophila melanogaster* is perfectly suited as a model organism for aging research. It has a relatively short life span (~ 70 days), is easy to maintain in large numbers, and a treasure trove of different stocks and genetic mutations are readily available for research. Its behavior, and thus age-related changes are more complex than that of another important model organism, the roundworm *C. elegans*. Furthermore, a variety of molecular biology techniques has been developed for use in the fly that allows researchers to label individual cells, disable any gene in any tissue and to over or under express any gene at any time during development or adult life. Of further importance for aging research is the fact that *Drosophila* has well defined developmental stages: the embryo, the larva, the pupa and the adult fly. Developmental research mostly focuses on the embryo and the larva, while aging research is concerned with the adult fly, the period in life during which aging is thought to occur. The adult fly consists entirely of post mitotic cells, except for the gut and gonads, thus making it an excellent model system for organismal, as well as cellular aging.

Using these molecular and genetics tools, *Drosophila* researchers have over the past decade begun to untangle the factors governing the aging process. One misconception this research has cleared up is the assumption that the changes that take place during aging occur randomly. The recognition of reproducible changes during aging has lead researchers in *Drosophila* to identify biomarkers that change in a predictable, non-random fashion as animals age.⁴ The change in activity pattern of these markers is so consistent that they can be used as biomarkers of aging in order to predict whether a cohort of flies is on a trajectory to live a normal or longer than normal life span.⁵ Efforts are under way to identify corresponding biomarkers of aging in mammals as well.

Since aging was assumed to be a complex combination of random degenerative processes, the discovery that single gene alterations can robustly extend life span across species was rather unexpected. It was long known that down regulation of specific physiological systems (fertility, activity) can positively affect life span, as energy invested in these systems could now be used to maintain the organism for longer times. It was thus assumed that single gene alterations that extend life span would show unacceptable detrimental trade offs. However, as the work with *Drosophila* demonstrates, that does not have to be the case. Not only can single gene alterations that extend life span be identified, but also distinctions can be made between life span extending mutants that show negative physiological tradeoffs and those that apparently do not.⁶

Two of the most studied pathways of life span extension are **calorie restriction (CR)** and **insulin signaling (IIS)**. CR is the only intervention that has been shown to extend life span in every organism studied, ranging from yeast, to nematodes, flies and even mammals.⁷ Down regulation of IIS has been shown to extend life span in nematodes, flies and mice.⁸ CR may be an organismal response to adverse environ-

mental conditions. As part of this response basic metabolic parameters are altered so that the organism can survive until conditions become more favorable. Changing the activity status of the IIS might be one way to achieve this. Activation of the IIS constitutes a pro-growth signal for the organism while decreasing this signal is linked to extended life span. Limiting nutrient intake might thus serve as a signal to inactivate IIS. Current research in *Drosophila* aims to causally link these two pathways.

Using single gene alterations in *Drosophila*, researchers have been able to molecularly define parts of the CR and IIS life span extending pathways and identify the molecules that regulate life span. With this knowledge drug screens have been performed to identify drugs that target specific components of these pathways to extend healthy life span. For example, resveratrol, a component of red wine, has been shown to extend *Drosophila* life span by mimicking CR.⁹ As the physiological systems that govern these processes are conserved between species, it is possible that resveratrol also extends mammalian life span, including humans. Initial results in mice are indeed promising.

Drosophila is not only a model system for our basic understanding of the aging process; it also serves as a tool to understand age related diseases. One of the major risk factors for neurodegenerative diseases such as Alzheimer's or Parkinson's Disease is age. These, and other neurodegenerative dis-

eases like Huntington's Disease and other inherited tri-nucleotide repeat syndromes including spinocerebellar ataxias, have been modeled in *Drosophila* and are being used to increase our understanding of the molecular and cellular basis of these diseases as well as develop drug therapies.¹⁰

Interestingly, *Drosophila* has also begun to be studied as a model of cardiac dysfunction.¹¹ Aging flies, just like aging mammals, display increasing cardiac arrhythmias, which can be delayed by life span extending interventions. These promising initial results show that the powerful molecular genetic techniques available in the fly might also be put to advantage in understanding and treating aging of the cardiac system.

The invertebrate *Drosophila* model might not recapitulate all aspects of human aging and disease physiology, but there are many important and relevant similarities. The lessons that have been learned from development and other critical physiological systems have so far shown that there are more similarities between flies and humans than could have ever been imagined only a few decades ago.

Since the underlying molecular pathways involved in critical physiological systems such as development are conserved from fly to humans, findings in the *Drosophila* model are likely to be applicable to humans. Importantly, the strength of the fly model lies in the genetic and pharmacological screens that can be performed to identify modifiers, risk factors and drug treatments of aging and age related diseases to achieve a longer health span. One hundred years ago, Morgan could have not foreseen that his banana-mush loving critters would someday contribute to longer, healthier human life.

ACKNOWLEDGEMENTS

This work was supported by grants from the NIA and the Ellison Medical Foundation to SLH. SLH is an Ellison Medical Research Foundation Senior Investigator. This research was conducted while JHB was an Ellison Medical Foundation/AFAR Senior Postdoctoral Fellow.

REFERENCES

1. Bendiner E. Of peas, fruit flies, and the birth of a science. *Hosp Pract (Off Ed)* 1986;22, 116-20, 123-9, 132-3.
2. Adams MD, Celniker SE, et al. The genome sequence of *Drosophila melanogaster*. *Science* 2000;287, 2185-95.
3. Roush W. Nobel prizes. *Science* 1995;270, 380-1.
4. Helfand SL, Rogina B. Regulation of gene expression during aging. *Results Probl Cell Differ* 2000;29, 67-80.
5. Bauer, J. H., Goupil, S., Garber, G. B., and Helfand, S. L. (2004) An accelerated assay for the identification of lifespan-extending interventions in *Drosophila melanogaster*. *Proc Natl Acad Sci U S A* 101, 12980-12985
6. Helfand, S. L., and Rogina, B. (2003) From genes to aging in *Drosophila*. *Adv Genet* 49, 67-109.
7. Masoro, E. J. (2003) Subfield history: caloric restriction, slowing aging, and extending life. *Sci Aging Knowledge Environ* 2003, RE2
8. Tatar, M., Bartke, A., and Antebi, A. (2003) The endocrine regulation of aging by insulin-like signals. *Science* 299, 1346-1351
9. Wood, J. G., Rogina, B., Lavu, S., Howitz, K., Helfand, S. L., Tatar, M., and Sinclair, D. (2004) Sirtuin activators mimic caloric restriction and delay ageing in metazoans. *Nature* 430, 686-689
10. Bilen, J., and Bonini, N. M. (2005) *Drosophila* as a model for human neurodegenerative disease. *Annu Rev Genet* 2005;39, 153-171.
11. Bier, E., Bodmer, R. *Drosophila*, an emerging model for cardiac disease. *Gene* 2004;342, 1-11.

Johannes H. Bauer, PhD, is a postdoctoral research associate in the Department of Molecular Biology, Cell Biology and Biochemistry, Division of Biology and Medicine, Brown University.

Stephen L. Helfand, MD, is Professor in the Department of Molecular Biology, Cell Biology and Biochemistry, Division of Biology and Medicine, Brown University.

CORRESPONDENCE:

Stephen L. Helfand, MD
Brown University
Laboratories for Molecular Medicine
70 Ship Street, Room 407
Providence, RI 02903
Phone (401) 863-9654
e-mail: Stephen_Helfand@brown.edu



Science and Technology Studies: Its Relevance to Medical Education and the Practice of Medicine

Lundy Braun, PhD, and Anne Fausto-Sterling, PhD

Combine a quick glance at the front page of the *New York Times* or the *Boston Globe* with two minutes of advertising on the nightly news. It becomes clear that medicine is simultaneously big business, a cultural practice, and a healing profession. Headlines, such as “Big Study Finds No Clear Benefit of Calcium Pills,”¹ “Women’s Health: State of Confusion,”² “Drug Industry Braces for New Suits Over Even More of Its Products,”³ seemingly report on straightforward analyses of scientific studies. Behind these headlines, however, are central questions of values and knowing. What social and cultural values inform the scientific questions we ask? Why are certain questions asked and not others? How do scientists, physicians and their patients mediate the fraught, often contradictory terrain of their own political perspectives and socio-cultural values to provide the best possible health care?

Scholars in Science and Technology Studies, an interdisciplinary endeavor that brings together anthropologists, philosophers, historians, art historians, literary theorists, sociologists, scientists, and physicians, concern themselves with how scientific knowledge is produced, accepted by scientists, transmitted in popular culture, and incorporated into scientific and medical practice. There are many medical controversies for which a science studies analysis is relevant. Two case studies, one on hormone replacement therapy in menopausal women and the other on race and genomics, illustrate our claim that the scientific and the social are inextricably linked. Viewed in this way, many of the apparent contradictions that characterize the daily experience of clinical practitioners can be clarified. We conclude by offering some ideas on the importance of integrating a science and technology studies approach into the medical curriculum.

HORMONE REPLACEMENT THERAPY

In 2002, the use of hormone replacement therapy (HRT) involving

combined estrogen and progesterone administration ended abruptly when the Women’s Health Initiative reported that HRT increased the risk of breast cancer and, perhaps, cardiovascular disease.⁴ Furthermore, rather than reducing the carcinogenic effects of unopposed estrogen, the addition of progesterone increased the risk of breast cancer over that of estrogen alone. Before the Women’s Health Initiative report, most gynecologists routinely prescribed HRT for perimenopausal and menopausal women, basing the decision on a reasonable understanding of the evidence or at least the way in which the scientific literature presented the evidence. For months afterward, the press featured stories of anguished women and their physicians confronted with wrenching choices: increase the risk of breast cancer, deal with the unpleasant effects of menopause without HRT, or fall victim to one or more of a growing list of diseases and conditions—osteoporosis, cardiovascular disease, Alzheimer’s disease, depression, other mental deficits, and aging skin—presumably associated with the menopause and against which HRT was believed to be protective, if not curative.

To many scholars and activists, however, the key issue was not simply a question of evidence, since a fundamental tenet of science studies is that evidence is always interpreted in different ways in different historical periods. In this case, the science was not mysterious. The biological effects of both estrogen and progesterone on breast tissue were well-studied, and a role for estrogen signaling in the biology of breast cancer had long been recognized. Moreover, a strong association between estrogen replacement therapy and endometrial cancer was demonstrated conclusively in 1975. Among the questions that science studies scholars and many others began to ask in the 1980s and 1990s were: Why was HRT so widely and unquestioning accepted? What underlying cultural assumptions shaped prescription patterns and

women’s expectations of HRT as a “treatment” for menopause in Western societies? Was the relationship between menopause and disorders such as osteoporosis and cardiovascular disease sufficient to explain the acceptance of HRT?

The characterization of menopause as a hormone deficiency state and the underlying characterization of menopause as a condition requiring treatment has long been controversial. Life-long therapy with estrogen for post-menopausal women was vigorously promoted in the mid-1960s. As a result, Premarin became one of the most commonly prescribed drugs in the US.^{5,6} The first round of sales to “estrogen-starved” women was short-lived, however. With the 1975 publication of the article linking estrogen to endometrial cancer, women and their physicians retreated from the routine administration of estrogen. By the 1990s, despite considerable debate in previous decades about whether menopause was a “disease,”^{7,8} HRT, now combined with progesterone, again became a market phenomenon as the first wave of baby boom women entered menopause.

Was there enough new science to warrant the reintroduction of HRT as a safe drug? What was the role of the pharmaceutical industry in the relevant clinical research? Was women’s desire for eternal youth a significant factor in the resurgence in HRT? Which factors led to a change in practice, and how did these factors convince medical practitioners that HRT was a good idea? These are the questions that science and technology studies scholars address. We suggest that this approach to the analysis of scientific and clinical data ought to become an integral part of medical training.

In the aftermath of the Women’s Health Initiative study and the resultant confusion among women and physicians about the management of menopausal symptoms, a panel of epidemiologists, basic scientists, physicians, activists, and historians of medicine assembled in Bos-

ton in June 2004 to consider what types of interdisciplinary approaches might help to avoid such disappointment in the future. Understanding “its [HRT] societal context, including the impact of the pharmaceutical industry, the biomedical emphasis on individualized risk and preventive medicine, and the gendering of hormones,” participants at this conference concluded, was essential to the practice of “socially responsible science.”⁹

RACE, GENOMICS, AND HEALTH DISPARITIES

The genetics of race is another socially contentious issue in contemporary medical practice for which a science studies analysis is relevant. The debate has been triggered by the recent focus of commonsense notions of “race,” population and molecular genetic research, and social activism on the goal of rectifying racial and ethnic health disparities in the US and globally. Beginning in 2000, after the announcement of the sequencing of a draft of the human genome, editors at *Nature*, *Nature Genetics*, *New England Journal of Medicine*, *International Journal of Epidemiology*, and *American Psychologist* published editorials or devoted whole issues to the debate.^{10,11} With the approval and enthusiastic reception of BiDiI, the first “race-based” medicine marketed by Nitromed, Inc. to African Americans, the discussion has taken on an urgency that few in medicine can afford to ignore. Central questions include: What is race? Will biological investigations, based on the notion that races are homogeneous genetic categories, provide a pathway for alleviating health disparities? Or, should we think in a more complex way about how the social environment produces biological effects through the modulation of gene expression. Do the negative health effects of race reflect the social context of people’s lives rather than their DNA sequences? Why, finally, are genetic explanations so commonly invoked?^{12,13} For practitioners, this is not an abstract theoretical problem but is key to providing the highest standards of care to diverse populations.

While a full discussion of racial classification is beyond the scope of this article, the history of race in the West is linked to the development of modern science, beginning with the great classi-

fier Carl Linnaeus and followed by other Enlightenment thinkers, such as Johann Friedrich Blumenbach and Immanuel Kant. Until the end of the 19th century, the notion of race was fluid, though hierarchical, drawing on ideas both of biological and of cultural difference.¹⁴ Although the civil rights movement represented a moment when environmental explanations for the health experience of racial and ethnic minorities gained prominence, it was during the 20th century that biology assumed greater importance as a marker of racial difference and health status. Thus, it should not be surprising that at the beginning of the 21st century, many claim that differential health outcomes are rooted in genes.

What social and cultural values inform the scientific questions we ask?

In the case of hypertension, we can see quite clearly that the meaning we ascribe to race matters in terms of research priorities and clinical care. Hypertension has long been known to be more prevalent in African Americans as compared to white Americans. This point is not in dispute. At issue are the underlying causes. The major explanations fall into three groups: genetic difference, environmental differences, and biological manifestation of life, including environmental, experience. Each point of view implies a different approach to prevention and care. The predisposition of African Americans to hypertension has often been ascribed to primary genetic factors. Alternative theories for high hypertension rates among African Americans proposed by Nancy Krieger and others state that the life experience of racism can affect physiology through stress-mediated modulation of gene expression.¹⁵

A recent study by Richard Cooper and colleagues underscores the problem in viewing health exclusively through a racialized lens¹⁶ (one that, in fact, may be particular to the US, where race has long been defined differently than in Europe). Taking a comparative approach, these investigators examined hypertension rates in: Nigerians, US whites, Canadians, Ja-

maicans, Swedes, Italians, English, US blacks, Spanish, Finish, and Germans. Contrary to prevalent views, they showed that Germans, Finns, and the Spanish have higher hypertension rates than US blacks. The lowest hypertension rates were observed in Nigerians. The study is limited in that there is no racial breakdown in European countries studied and Nigerians are the only African population included. Nonetheless, this work is important in refuting the notion that “black genes” account for high hypertension rates. Thus, while it is still of great importance to deepen our understanding of racial disparities in hypertension in the US context, a more complex analysis of the assumptions about racial difference that drive research takes us in directions other than genetic explanations for health inequalities. According to sociologist and president of the American Sociological Association Troy Duster, such an approach would begin with the recognition of a “complex feedback loop and interaction effect between phenotype and social practices related to that phenotype.”¹⁷ Reading the literature on race and hypertension in a critical manner is difficult. One has to figure out the meaning of race as deployed in each paper; one has to examine the perspective of the authors. Are they oriented toward developing drug treatments or finding ways to reduce chronic stress that leads to hypertension? Again, those with a science studies training (such as sociologist Duster) can offer an alternative framework in which to view such complexities.

CONCLUSION

In this changing and uncertain landscape, how can we best equip medical students to understand and adapt to social change throughout their career? If medicine is simultaneously a scientific and social practice, then it follows that medical education should incorporate such a perspective. As well as learning the latest scientific advances, students need to learn how to examine the social context of medicine and acquire tools for understanding how science informs and is informed by societal deliberations. Studying the history of social medicine and of therapeutic reform in the US should inform many contemporary controversies in medicine.^{18,19}

To be sure, physicians routinely theorize about the social nature of medicine without the benefit of formal training. But formal training offers the opportunity for deeper knowledge and the ability to apply analytical skills to new situations that arise five, ten and twenty years after completion of medical school. While medical curricula have long sought to address the myriad of scientific and biological factors that challenge the effective implementation of evidence-based medicine, Brown Medical School seeks to build on its longstanding tradition of viewing medicine in its social context. The insights of science studies research will contribute to the development of a curriculum that offers an opportunity for more rigorous examination of the full complexity of the issues that physicians face.

REFERENCES

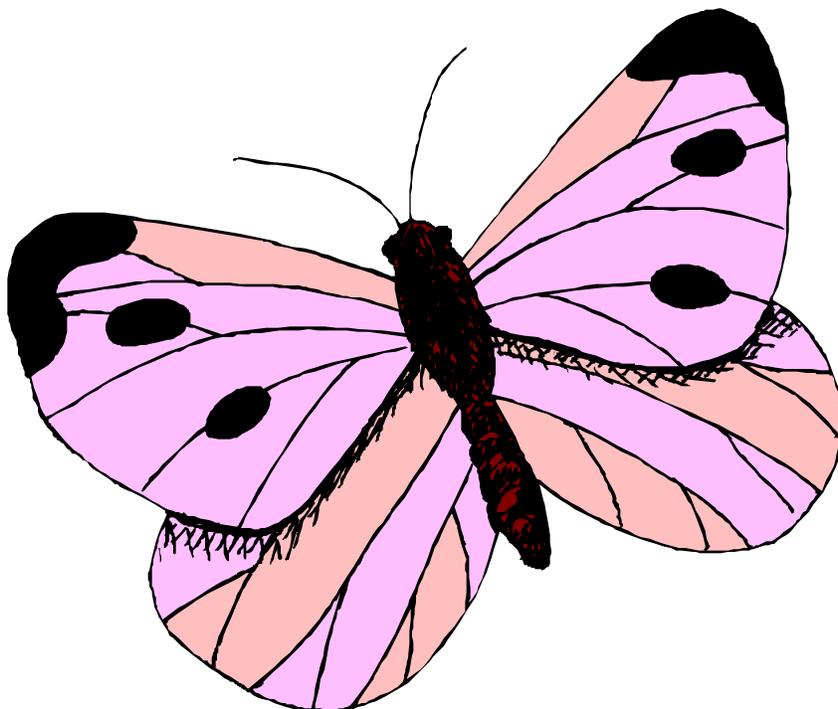
1. Kolata G. Big study finds no clear benefit of calcium pills. *The New York Times*, February 16, 2006. A1.
2. Editor. Women's health: state of confusion. *The New York Times*, February 26, 2006, 11.
3. Berenson A. Drug industry braces for new suits over even more of its products. *The New York Times*, April 22, 2006, C1.
4. Writing Group for the Women's Health Initiative Investigators. Risk and benefits of estrogen plus progestin in healthy postmenopausal women. *JAMA* 2002; 288: 321-33.
5. Wilson TA, Wilson TA. The fate of nontreated postmenopausal woman. *J Am Geriatric Society* 1963; 11: 347-61.
6. Fausto-Sterling A. *Myths of Gender*. New York: Basic Books, 1985.
7. Boston's Women's Health Collective. *Our Bodies Ourselves*. New York: Simon and Schuster, 1979.
8. Martin E. *The Woman in the Body: A Cultural Analysis of Reproduction*. Boston: Beacon Press, 1992.
9. Krieger N, Lowy I, et al. Hormone replacement therapy, cancer, controversies, and women's health. *J Epidemiol Community Health* 2005; 59: 740-8.
10. Cooper RS, Kaufman J, Ward R. Race and genomics. *NEJM* 2003, 348: 1166-70.
11. Burchard EG, Ziv E, et al. The importance of race and ethnic background in biomedical research and clinical practice. *NEJM* 2003; 348: 1170-5.
12. Braun L. Race, ethnicity, and health. *Perspectives Biology Med* 2002; 45: 159-74.
13. Fausto-Sterling A. Refashioning race. *Differences* 2004; 15: 1-37.
14. Stocking GW. The turn-of-the-century concept of race. *Modernism/Modernity* 1994, 1.1: 4-16.
15. Krieger N. Does racism harm health? *Am J Pub Health* 2003, 93: 194-9.
16. Cooper RS, Wolf-Maier K, et al. An international comparative study of blood pressure in populations of European vs. African descent. *BMC Medicine* 2005; 3: 1-9 (www.biomedcentral.com/1741-7015/3/2).
17. Duster T. Race and reification in Science. *Science* 2005; 307: 1050-1.
18. Yach D, Tollman SM. Public health initiatives in South Africa in the 1940s and 1950s. *Am J Public Health* 1993; 83: 1043-50.
19. Marks HM. *The Progress of Experiment: Science and Therapeutic Reform in the United States, 1900-1990*. Cambridge: Cambridge University Press, 1997.

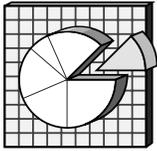
Lundy Braun, PhD, is Associate Professor of Pathology and Africana Studies, Brown University.

Anne Fausto-Sterling, PhD, is Professor, Department of Molecular and Cellular Biology and Biochemistry and the Program in Gender Studies, Brown University, and Chair of the Faculty Committee on Science Studies

CORRESPONDENCE:

Lundy Braun, PhD
Brown University – Box G
Providence 02912
Phone: (401) 863-3308
e-mail: Lundy_Braun@brown.edu





The Health of Rhode Island's Hospitals

Bruce Cryan, MBA, MS

Rhode Island's 13 non-profit community hospitals are a \$2.6 billion dollar economic driver in the state, comprising over 8% of the Gross State Product. The hospitals' payroll approaches \$1.5 billion, and they invest more than \$164 million annually in new capital construction and equipment. Because of their importance to healthcare delivery, their impact on the economy, and the large public investment they represent, the Rhode Island Department of Health tracks the performance of this industry to monitor financial trends, to inform healthcare policy, and to identify financial problems. This article is excerpted from a 2006 Report¹ similarly titled.

METHODS

The Department of Health compiles an annual dataset² from the audited financial statements of the 13 community hospitals, comprising 1,700 separate data elements. The financial performance of the hospitals is appraised using ratio analysis. This technique uses the audited data to calculate eight measures that are grouped into four categories: profitability, leverage, liquidity, and activity. To benchmark statewide performance, the aggregate statewide values were compared to equivalent national data for 2004.³ To gauge performance over time, three years of data were examined (2003-2005). Finally, to assess the individual hospitals, the eight measures over the three years were aggregated into a composite, standardized index,¹ with higher values indicating better financial performance.

RESULTS

Table 1 presents the eight statewide ratios with their desired trends. Profitability measures examine the generation of net income and the creation of wealth. Profitability is critical to a hospital's long-term survival because it provides the means to replace aging plants and to invest in new technologies. Rhode Island's 2004 statewide profit margin trailed the national benchmark (2.4% versus 3.3%) and was the 15th lowest in the country. However, in 2005, the state's hospitals posted a 33% increase, from 2.4% to 3.2%. Hospital equity or net worth also improved over the period. Hospitals statewide posted a 12% equity gain in 2004, the 3rd highest in the nation. There was a further 11% growth in equity in 2005 (from \$1.47 to \$1.64 billion).

Leverage measures define the importance of debt in financing the hospital, and the ability to fund additional borrowings. Leverage is important because it has a direct bearing on a hospital's creditworthiness and, ultimately, its ability to fund future capital projects. Statewide financial leverage in 2004 was similar to the national benchmark

Table 1. Statewide Hospital Financial Ratios, Rhode Island, 2003-2005

Ratio	2003	2004	2005	Desired Trend
Profitability				
Profit Margins	-0.3%	2.4%	3.2%	up
Equity Growth Rates	-2%	12%	11%	up
Leverage				
Debt to Capitalization	27%	26%	24%	down
Debt Service Coverage	2.3	3.6	4.0	up
Liquidity				
Current Ratios	1.41	1.40	1.37	up
Days in Accounts Receivable	51	50	46	down
Activity				
Total Asset Turnovers	\$0.94	\$0.91	\$0.90	up
Fixed Asset Turnovers	\$2.81	\$2.63	\$2.63	up

Table 1.

(26% versus 27%), and just below the median of all states. In 2005, Rhode Island's financial leverage improved from 26% to 24%. The hospitals' ability to service the debt exceeded the national benchmark in 2004 (3.6 versus 3.1), and was the 17th highest in the country. This measure further improved from 3.6 to 4.0 in 2005.

Liquidity measures assess the ability of a hospital to pay its short-term obligations. Deterioration in liquidity usually indicates cash-flow problems when an organization experiences financial difficulty. Rhode Island's current accounts were weaker than the national benchmark in 2004 (1.4 versus 2.0), and ranked 2nd lowest in the nation. In 2005, these account balances remained essentially unchanged (1.40 to 1.37). Hospitals' collection of receivables, however, was much more favorable. In 2004, the statewide value was below the national benchmark (50 versus 55 days), and was the 6th lowest in the U.S. Rhode Island hospitals further improved their performance in 2005, reducing the collections period from 50 to 46 days.

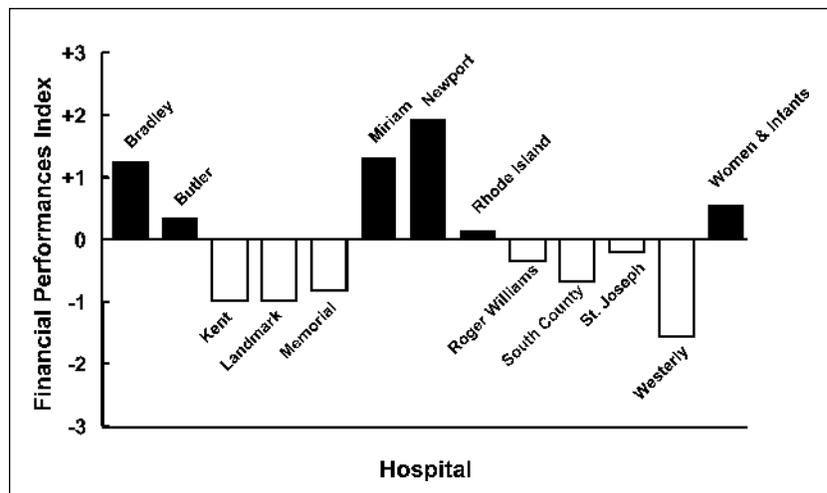


Fig 1. Hospital Financial Performance Index, by Hospital, Rhode Island, 2003-2005.

Activity statistics examine how productively hospitals use their assets to generate revenue. Higher values indicate a more efficient use of resources, all else being equal. Rhode Island's 2004 *total asset turnover* trailed the national value (\$0.91 versus \$1.06), and its measure was essentially flat in 2005 (\$0.91 to \$0.90). The 2004 *fixed asset turnover*, however, bested the national benchmark by 7% (\$2.63 versus \$2.46), and was the 17th highest in the U.S. Two factors may help explain the apparently conflicting relative performances on these measures for the state's hospitals. First, they are older than their national counterparts, on average (12.1 versus 9.8 years), which tends to inflate their *fixed asset turnover* value because of understated historical costs on the property, plant and equipment. Second, Rhode Island hospitals may hold more financial assets (i.e., investments) than hospitals elsewhere, and this would depress their *fixed asset turnover* value because the income generated from the underlying securities is not booked as revenue, but as a below-the-line net gain.

In addition to benchmarking the performance of the state's hospitals to others across the country, individual hospitals were also evaluated against each other using a composite index of the eight financial ratios. Figure 1 presents those results. Newport (1st), Miriam (2nd), and Bradley (3rd) showed the strongest overall financial performance in the state, while Westerly (13th), Kent (12th), and Landmark (11th) exhibited the weakest overall performance, respectively.

AIR FORCE PHYSICIANS

Use the most advanced technologies and work with some of the most highly educated healthcare specialists in the world. As a United States Air Force physician, you're part of an elite team focused on giving state-of-the-art medical care to Airmen and their families. Receive 30 days of vacation with pay, health benefits and travel.

Call 1-800-588-5260

or visit AIRFORCE.COM/HEALTHCARE.



U.S. AIR FORCE
CROSS INTO THE BLUE

DISCUSSION

Generally, the financial prognosis for RI's hospitals is favorable. Compared to their national counterparts, in 2004:

- RI hospitals were less profitable (2.4% vs. 3.3% profit margins), but ...
- Their net worth(s) grew faster (+12% vs. +8% equity growth rates).
- RI hospitals had similar financial leverage (26% vs. 27% debt to capitalization), but ...
- They had greater capacity to service additional debt (3.6 vs. 3.1 debt service coverage).
- RI Hospitals had weaker liquidity (1.4 vs. 2.0 current ratios), but ...
- They had better collections of their outstanding accounts (50 vs. 55 days in accounts receivable), and ...
- They used their fixed assets more productively (\$2.63 vs. \$2.46 fixed asset turnovers).

In addition, in 2005, RI hospitals' performance improved, as:

- Profitability increased from 2.4% to 3.2%.
- Net worth grew 11%.
- Financial leverage decreased from 26% to 24%, and ...
- Debt capacity increased from 3.6 to 4.
- Liquidity remained the same, but ...
- Collections improved from 50 to 46 days.

Bruce Cryan, MBA, MS, is a Health Policy Analyst in the Center for Health Data and Analysis, Rhode Island Department of Health.

REFERENCES

1. Cryan B. *The Health of Rhode Island's Hospitals (2005)*. Providence RI: Rhode Island Department of Health. July 2006. (www.health.ri.gov)
2. Cryan B. *The 2005 Hospital Financial Dataset*. Providence RI: Rhode Island Department of Health. May 2006. (www.health.ri.gov)
3. *Almanac of Hospital Financial & Operating Indicators*, 2006 ed. Ingenix, Inc.

The Rhode Island Health IT e-Newsletter Project Update

Statewide efforts to create a health information exchange continue to make progress. Vendor selection to choose a technology partner is well underway. A total of five focus groups seeking consumer input have been conducted. Two of the three focus groups were conducted in Spanish. Additionally legislation has passed which authorizes the state to commit its share of initial capitalization and operations of a Health Information Exchange, providing private financing is identified and the affected partners agree to pay their share.

The State and Regional Demonstration in Health Information Technology Project, also known as the AHRQ Health IT Project is a 5 year, \$5 million dollar demonstration project that was awarded to the Rhode Island Health Department of Health by the Agency for Healthcare Research and Quality in 2004 and will continue until 2009. Rhode Island is one of 6 states to be part of this demonstration project. The contract will plan, develop, implement, and evaluate an electronic “backbone” to facilitate interoperability and sharing of patient data between hospitals, physician offices, labs and other healthcare providers.

ADVISORY COMMITTEE MAKES NHIN RECOMMENDATIONS:

The National Committee on Vital and Health Statistics concluded that patients should be able to determine whether their electronic health records are accessible via the national health information network. The committee did not agree on whether the U.S. should adopt an opt-in or an opt-out policy. For more information: <http://www.ihealthbeat.org/index.cfm?Action=dspItem&itemID=122685>

FIRST CCHIT (Certification Commission for Healthcare Information Technology) CERTIFIED PRODUCTS ANNOUNCED IN JULY:

The first ambulatory EHR products to be certified by CCHIT were announced on July 18. Products that comply with 100 percent of the functionality and security criteria tested during the inspection will bear the CCHIT Certified SM seal.

The CCHIT “Certified seal of approval” provides the first real benchmark for ambulatory EHR products. Physicians are encouraged to look for EHR products featuring the CCHIT Certified seal. They can feel confident in purchasing CCHIT Certified products because the certification criteria have been designed to ensure that products provide a defined set of functions, are compatible with other systems, and are secure and reliable.

For a physician practice embarking on an EHR implementation journey, ask vendors about their certification status. Vendor evaluation should include focus on those EHRs that are working towards or meet the rigorous CCHIT certification process.

For more information on CCHIT certification and the products that received certification, visit: www.cchit.org

U.S. HEALTHCARE IT LEGISLATION’S PROGRESS SLOWS:

A health care IT bill making its way through the U.S. Congress appears to have stalled in the U.S. House of Representatives after the Congressional Budget Office forecasted that the bill would increase spending and reduce revenue. The bill called for national standards in setting up electronic health records and the adoption of health care information technology. For more information visit: <http://www.healthcareitnews.com/story.cms?id=5109>

RHODE ISLAND IN THE NEWS:

Care New England Secures Health-IT Infrastructure: Women & Infants Hospital of Rhode Island went live with a Cerner Millennium clinical information system June 18th. The hospital’s parent organization, Care New England Health System (Providence, R.I.), introduced secure, online personal health records for patients. <http://tmlr.net/jump/?c=21060&a=296&m=3863&p=1798277&t=164>

LIFESPAN SELECTS VERICEPT TO SECURE DATA, PROTECT HEALTH INFORMATION:

Lifespan, a health system in Rhode Island, has selected the Vericept 360-degree Risk Management Platform to protect sensitive protected health information (PHI) and organization data:

Vericept Corp., a developer of compliance and content control tools, says that Lifespan, a health system in Rhode Island, has selected The Vericept 360-degree Risk Management Platform to protect sensitive protected health information (PHI) and organization data. According to the company, the Vericept platform is used to help corporations and organizations gain “complete visibility” into all insider risk and controls violations before they occur. With “360-degree visibility” across the entire network, Vericept says, it passively analyzes data-in-motion and data-at-rest to help identify and control potential compliance violations, intellectual property theft, customer data loss, insider hacker activity, Internet abuse and other risks.

RHODE ISLAND TO CONTRIBUTE \$6M TOWARD RHIO:

The Rhode Island General Assembly has approved a state budget, which includes \$6 million to help finance the cost of

developing a regional health information organization. The money is contingent upon funding agreements from other players who will benefit from the health information exchange: <http://www.ihealthbeat.org/index.cfm?Action=dspItem&itemID=123024>

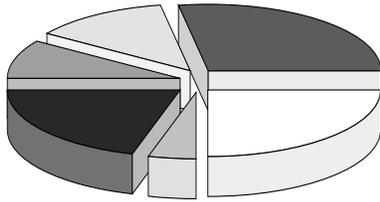
8SOW-RI-IT-082006

To subscribe to the Quality Partners of Rhode Island Health IT e-Newsletter contact Mary Ellen Casey: mcasey@riqio.sdps.org

CORRESPONDENCE

Mary Ellen Casey
Quality Partners of Rhode Island
235 Promenade Street, Suite 500
Providence, RI 02908
e-mail: mcasey@riqio.sdps.org

THE ANALYSES UPON WHICH THIS PUBLICATION is based were performed under Contract Number 500-02-RI02, funded by the Centers for Medicare & Medicaid Services, an agency of the U.S. Department of Health and Human Services. The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government. The author assumes full responsibility for the accuracy and completeness of the ideas presented.



Health Insurance Update

New Prompt Payment Regulation Offers Greater Protections to Physicians

John Aloysius Cogan Jr, MA, JD, and Patricia E. Huscble, MS

Claims payment delays and wide variations in payment timeframes among Rhode Island's health insurers continue to generate consternation among the state's physicians.¹ Rhode Island, like most states,² has attempted to address payment delays through prompt payment laws. Typically, prompt payment laws require health plans to: (1) pay "clean claims" within thirty to forty-five days from the date of submission, (2) pay interest on claims processed outside of the required time frames and (3) pay administrative penalties to the state when claims are consistently paid late. Although prompt payment laws have generally helped to improve the payment situation for physicians, a significant amount of confusion about the scope and applicability of prompt payment laws has hindered their effectiveness. The same is true for Rhode Island's prompt payment laws. Although Rhode Island's prompt processing laws have been in place since 2001, health plans and health care providers have interpreted the laws inconsistently. As a result, the laws have been less effective than intended.

In response, the **Office of the Health Insurance Commissioner (OHIC)** has proposed a new regulation³

that will bring some clarity to Rhode Island's prompt payment laws.⁴ The new regulation, which will replace the state's existing prompt processing regulation issued by the **Department of Business Regulation (DBR)** in 2003,⁵ does three things. First, the regulation clarifies to whom the prompt payment laws apply. Second, the regulation specifies the types of claims covered by the prompt payment laws. Finally, the regulation establishes a formal process for providers to lodge complaints for late payments.

WHOM DO THE PROMPT PAYMENT LAWS APPLY TO?

Rhode Island's prompt payment laws apply to health insurers, health maintenance organizations, Blue Cross and Blue Shield organizations, non-profit dental service corporations and licensed contractors that operate a health plan in Rhode Island. Previously, only a handful of Rhode Island-licensed health insurers thought that they were subject to the prompt processing laws. As a result, the OHIC received only a handful of monthly claims processing reports⁶ and physicians did not receive the interest payments they were entitled to for claims

processed outside of statutory timeframes. Now, payors such as Delta Dental, Blue Cross and Blue Shield of Massachusetts as well as certain **third party administrators (TPAs)** will be subject to the prompt payment requirements. They must process claims within appropriate time frames, pay interest on late-processed claims, and submit processing reports to the OHIC.

WHAT TYPES OF CLAIMS ARE COVERED BY THE PROMPT PAYMENT LAWS?

Under the old regulation, each health plan applied the prompt processing laws to a limited set of claims. Most plans assumed that the prompt processing guidelines did not apply to self-insured claims. Some plans assumed that RIte Care claims were likewise excluded from the processing requirements. The new regulation makes clear that the payment timeframes apply to *all* non-federal program claims.⁷ Thus, claims that are fully insured as well as those that are self-insured are subject to the prompt payment guidelines and interest payment requirements. The new regulation also makes clear that the processing requirements apply to RIte Care claims.

HOW DO PROVIDERS LODGE A PROMPT PROCESSING COMPLAINT?

The existing regulation does not provide any guidance to physicians with respect to enforcement of the prompt processing laws or how to file a complaint about late processed claims. The new regulation provides a standard complaint form and explains the procedures for filing a prompt payment complaint with a health plan and the OHIC.

WHEN WILL THE NEW REGULATION GO INTO EFFECT?

The new regulation is scheduled go into effect on January 1, 2007. Until that time, the current regulation will remain in place.

For more information about the new prompt processing regulation, other regulatory developments and the efforts of the OHIC to ensure the fair treatment of the state's health care providers, please visit www.dbr.state.ri.us/health_insurance.html.

NOTES

1. Recently, a Massachusetts claims processing company issued national and regional rankings of health plans based fourth quarter 2005 claims processing data. Those rankings highlight the wide variation in claims processing times among Rhode Island health plans. According to the processing company's data, Blue Cross and Blue Shield of Rhode Island (BCBSRI) has the fastest turn-around time among Rhode Island plans (14.8 days) while UnitedHealthcare has the slowest (37.1 days). See www.athenapayerview.com. According to the website, these figures include "whatever lag time was involved on the provider's part." The claims processing company maintains that, because "providers tended to take the same amount of time to submit claims . . . [these] timeframes remain a valid comparative representation."
2. According to the American Medical Association, 47 states and the District of Columbia have prompt payment laws and/or regulations. See www.ama-assn.org/ama/pub/category/14409.html.
3. The regulation is posted at www.dbr.state.ri.us/health_insurance.html.
4. R.I. Gen. Laws §§ 27-18-61, 27-19-52, 27-20-47 and 27-41-64.
5. A copy of DBR's 2003 prompt process regulation may be found at http://www.dbr.state.ri.us/rules_regs/insur/InsuranceRegulation102.pdf

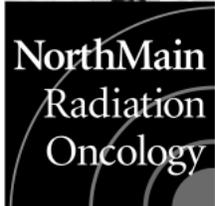
6. Under the existing regulation, health plans must submit a monthly report detailing the number of claims processed and the number of claims processed within the required timeframes.
7. Examples of federal program claims exempt from this regulation include claims submitted for payment under the Medicare or Medicaid programs and the Federal Employees Health Benefits program.

John Aloysius Cogan Jr, MA, JD, is Counsel and Executive Assistant for Policy and Program Review, Office of the Health Insurance Commissioner.

Patricia E. Huschle, MS, is Provider Liaison, Office of the Health Insurance Commissioner.

CORRESPONDENCE:

Patricia E. Huschle, MS
Office of the Health Insurance
Commissioner
233 Richmond Street
Providence, RI 02903
Phone: (401) 222-5424
e-mail: phuschle@dbr.state.ri.us



"We are...

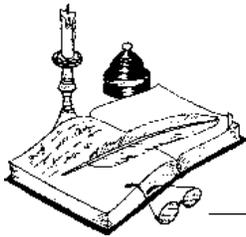
For more than 25 years, NorthMain Radiation Oncology has been the leading provider of high-quality radiation therapy services to the region. State-of-the-art technology, compassionate specialists, and complete radiation therapy services in a convenient, comfortable environment.

Our mission remains simple: to know each patient as a person and provide the best cancer care possible.

...NorthMain."

Roger L. Brotman, M.D. • Donald R. Joyce, M.D. • Gabriela B. Masko, M.D.
Nicklas B.E. Oldenburg, M.D. • Kathy Radie-Keane, M.D. • Scott A. Triedman, M.D.

www.nmrad.com (formerly Radiation Oncology Associates)
825 North Main Street, Providence, RI 02904 401-521-9700



Physician's Lexicon

The Words of Dermatology

The vocabulary of skin disease is truly immense, the more so since many cutaneous diseases - or at least systemic diseases with skin manifestations - bear multiple terms as generations of physicians have struggled to understand them. And most of these names, particularly the older nomenclature, continue to be cautiously descriptive rather than assertively etiologic.

Some dermatological names have been selected because of their resemblance to some feature of an animal. Ichthiosis [a scaly skin disorder], is derived from a Greek root meaning fish [as in ichthyology]. And alopecia [baldness] also stems from a Greek word meaning fox [since patchy baldness [*mange*] was commonly observed in fox. Mange, incidentally, is from the Latin meaning to eat or chew away, as in the French, *manger*, and eventually, in the English, mandible.

Another Latin word meaning gnawing or eating away is *tinosa* which is the origin of the diagnostic term, tinea [ring-worm.] Adjectives frequently appended to tinea include: versicolor [meaning a changing color, the root, versi-, appearing in such English words as diverse, adversity and universe], circinata [meaning ring-shaped], and cruris [meaning pertaining to the leg.]

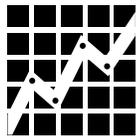
An excessive dryness of the skin is called xeroderma. The *xero-* root is from the Greek meaning dryness and appears in such words as xerophthalmia. The word migrated to the Latin, *serenus*, meaning bright or clear of moisture; and in English it evolved into the word, serene.

Keratosis, a thickening or horniness of the skin, is from the a Greek meaning nettle, which in turn is from a Latin verb, *urere*, meaning to burn. Urtica is also the

name given to the nettle *genus*. Argyria, a bluish-grey skin discoloration in individuals consuming large amounts of silver-containing medications, is from the Greek meaning silver-like and is the basis for such English words as litharge, Argo and Argentine.

Most names defining the vitamin deficiencies originate from the native idiom, words such as rickets, scurvy and beriberi. Pellagra, the cutaneous manifestations of chronic niacin deficiency, however, is a hybrid word formed from the Latin, *pellis* [meaning skin] and the Greek noun-suffix, *-agreo*, meaning to seize or take hold of. This suffix is generally employed to denote pain as in words such as chiragra [painful hands] or podagra [painful feet].

— STANLEY M. ARONSON, MD



RHODE ISLAND DEPARTMENT OF HEALTH
DAVID GIFFORD, MD, MPH
DIRECTOR OF HEALTH

VITAL STATISTICS

EDITED BY COLLEEN FONTANA, STATE REGISTRAR

Rhode Island Monthly Vital Statistics Report Provisional Occurrence Data from the Division of Vital Records

Underlying Cause of Death	Reporting Period			
	September 2005	12 Months Ending with September 2005		
	Number (a)	Number (a)	Rates (b)	YPLL (c)
Diseases of the Heart	184	2,987	279.2	4,625.5
Malignant Neoplasms	208	2,424	226.6	6,644.5**
Cerebrovascular Diseases	27	504	47.1	847.5
Injuries (Accidents/Suicide/Homicide)	30	421	39.4	6,472.0
COPD	35	554	51.8	490.0

Vital Events	Reporting Period		
	March 2006	12 Months Ending with March 2006	
	Number	Number	Rates
Live Births	965	13,529	12.6*
Deaths	902	9,688	9.1*
Infant Deaths	(4)	(103)	7.6#
Neonatal Deaths	(3)	(87)	6.4#
Marriages	318	7,405	6.9*
Divorces	343	3,131	2.9*
Induced Terminations	484	4,893	361.7#
Spontaneous Fetal Deaths	66	1,072	79.2#
Under 20 weeks gestation	(63)	(1,002)	74.1#
20+ weeks gestation	(3)	(70)	5.2#

(a) Cause of death statistics were derived from the underlying cause of death reported by physicians on death certificates.

(b) Rates per 100,000 estimated population of 1,069,725

(c) Years of Potential Life Lost (YPLL)

Note: Totals represent vital events which occurred in Rhode Island for the reporting periods listed above. Monthly provisional totals should be analyzed with caution because the numbers may be small and subject to seasonal variation.

* Rates per 1,000 estimated population

Rates per 1,000 live births

** Excludes 1 death of unknown age



MEDICAL MALPRACTICE TOPICS

INFORMATION FOR RHODE ISLAND PHYSICIANS FROM BABCOCK & HELLIWELL

"I'm Sorry" May Be the Best Medicine When Things Go Wrong

John Tickner, CPCU, President, Babcock & Helliwell

Even when the standard of care is met, patients may not completely heal or may die. Today, when outcomes are less than expected, patients want to know what and why something happened, and how the problem will be corrected. Many also want an apology.

Defying a long tradition in which doctors cultivated an image of infallibility and rarely apologized, the malpractice insurance industry has researched past claims, and now encourages doctors to be open, honest, and to apologize for pain or when things go wrong in the delivery of healthcare. Companies have found that physicians who are up-front about an adverse outcome, give answers, and apologize appropriately are less likely to be sued.

Jonathan Cohen, an assistant professor at the University of Florida College of Law, supports this view. His extensive research has found that "somewhere around 30 percent of plaintiffs claim they wouldn't have sued if only there had been an apology."

In speaking with Maureen Mondor, ProMutual Group's vice president, risk management, she told me, "An apology should not be an admission of fault but rather it should express sorrow for the pain the patient and family is going through and should show respect, empathy, and a commitment to patient satisfaction."

Apologizing is a skill that doesn't come easily. Since the early 1990s, ProMutual Group has been educating physicians on the importance of this skill and on the difference between admitting guilt and expressing sympathy. According to Mondor, "We encourage doctors to listen to the patient's concerns, to empathize with his or her feelings, and to explain the facts as they are known at the time. The importance of follow-up is critical, as is the need to remain in contact with the patient and family. Above all, however, we stress the importance of openness and honesty."

LEGAL RAMIFICATIONS

There are legal considerations. Anything you tell the patient can be used against you in court. Some patients will interpret any apology as an admission of guilt or liability. That is why many experts say it is important to have a colleague present when an apology is made.

Since 1991, so-called "apology laws" have been enacted in 30 states. These laws prohibit an apology which expresses condolence or empathy from being used against a doctor in court. Unfortunately, Rhode Island does not have such a law. (An apology in which responsibility is acknowledged is a different matter, and should only be made after speaking with an attorney.)

Even without apology laws, some experts feel that if the patient sues after a doctor apologizes, and that apology is admitted into the trial, the doctor will appear to have done the right thing by apologizing and will be a more sympathetic defendant.

APOLOGY GUIDELINES

The University HealthSystem Consortium, an alliance of academic medical centers, offers the following guidelines for physicians who wish to apologize after a medical misadventure:

- Meet with the patient and/or family as soon as possible after the incident.
- Send the same message to all family members. Because of privacy and confidentiality concerns, obtain the patient's consent to include the family in the conversation.
- Offer a sincere and heartfelt apology.
- Document the conversation in the patient's medical record, along with the names of those who were present.
- Note any questions that the patient or family asked, the responses provided, and the treatment plan for the patient.

LEARN MORE

For additional resources, visit the Babcock & Helliwell Web site and go to the "Malpractice" section.

I welcome your suggestions for future topics. E-mail me at jtickner@babcockhelliwell.com or write to me in care of the agency.

John Tickner, CPCU, is president of Babcock & Helliwell, a privately held independent insurance agency established in 1892 that provides professional insurance-related services of all kinds. Babcock & Helliwell is an agency for ProMutual Group, New England's largest medical malpractice insurance provider and the second-largest provider in Rhode Island.

Babcock & Helliwell
Insurance and Risk Management

Representing...  ProMutual Group

138 Main Street, Wakefield, RI 02879 [tel] 401.782.1800 www.babcockhelliwell.com

THE RHODE ISLAND MEDICAL JOURNAL

The Official Organ of the Rhode Island Medical Society
Issued Monthly under the direction of the Publications Committee

VOLUME 1
NUMBER 1

PROVIDENCE, R.I., JANUARY, 1917

PER YEAR \$2.00
SINGLE COPY, 25 CENTS

NINETY YEARS AGO, SEPTEMBER 1916

In "Social Insurance," an Editorial discussed the legislative commission created in Massachusetts to study health insurance—a move prompted by Lloyd George's bill in England. California already had such a state commission; and insurance bills had been introduced in Massachusetts, New York, and New Jersey. The Editor commented: "Health insurance represents the most important step yet taken for prevention of disease and the health of the community." He urged creation of a joint commission from RI Medical Society and the Providence Chamber of Commerce as "a nucleus for a strong working organization on this subject."

"North Beverly Outing" praised the June 27 fun-day, when H.P. Hood and Sons invited Rhode Island physicians, among 1400 guests, to their dairy in North Beverly. "While the gathering was frankly admitted by our hosts to be a sort of advertising, or propaganda, still in no slightest way did a commercial, unethical or unpleasant feature obtrude itself throughout one of the most enjoyable outings the Society has been privileged to enjoy." In field events, a Rhode Island contingent won the "fat men's race," the shot put and base ball [sic] nine. Hood planned another outing in the fall at their West Lynn plant.

Charles E. Hawkes, MD, in "Subphrenic Abscess," ["localized collection of pus between the under surface of the diaphragm and any of the adjacent organs"] discussed the case of a 34 year old

man complaining of pain in his stomach. Dr. Hawkes operated; and, after 2 months in the hospital, the man was "cured."

FIFTY YEARS AGO, SEPTEMBER 1956

The Rhode Island Chapter, American Academy of General Practice, sponsored a panel on "Help for the Hopeless" at its annual meeting, held in the RI Medical Society library. The Journal reprinted the talks, including "The Doomed Infant and Child," by Clement A. Smith, MD, Associate Professor of Pediatrics, Harvard Medical School. Dr. Smith reminded readers of his experience as a rotating intern in Ann Arbor in the late 1920s. He regularly transfused 4 elderly men who had pernicious anemia. A few months later, when he dropped in on the ward, the men were gone. Dr. Smith assumed they had died. But a publication by Dr. Minor had suggested putting patients with pernicious anemia on a diet heavy on liver. The hospital tried it, and the men all went home, presumably in remission. Dr. Clement explained: "Such an experience should happen to every young doctor. He could never again be quite willing to let go of anybody as 'doomed.'" He urged physicians to "resistance acceptance of doom and hopelessness in the case of pediatric patients." He had never told a patient he was going to die, but did tell children of impending catastrophes (like loss of a limb).

Herbert Ganger, MD, Y.S. Song, MD, and Thomas Murphy, MD, presented "Cytology Screening Program for Cancer in Women of the State of Rhode Island." The United States Public Health Service had given Rhode Island a grant for a vaginal cytology screening program. In the first screening (in Memphis), 95,000 women were examined (about 50.5% of the female population); 627 showed early uterine cancer, confirmed by tissue study.

Warren W. Francis, MD, and Normand E. Gauvin, MD, in "Surgical Treatment of Ulcerative Colitis," emphasized the high morbidity and high mortality of the procedure. From 1951 to 1956, 18 patients with ulcerative colitis were treated surgically at RI Hospital (22% of the total cases treated). Sixteen patients had serious post-operative complications; 6 died post-operatively.

TWENTY-FIVE YEARS AGO, SEPTEMBER 1981

An Editorial, "Whither Marijuana?" noted that two-thirds of young adults have used it. The Editorial also noted that marijuana had been cited for "genuine therapeutic uses" for asthma, glaucoma, and nausea from cancer treatment. The editorial concluded: "The future of marijuana for medical purposes is still under investigation. Its great dangers as a social prop are not."

An article announced the "New Rhode Island Poison Center," an affiliate of the National Poison Center Network. Mr. Yuk was the identifying logo: television spots were planned around Mr. Yuk, and the warning symbol was distributed on stickers to be applied to poisons.

Eric Denhoff, MD, contributed "Early Differential Diagnosis of Neurologically Impaired and Environmentally Injured Infants."

MEDICAL STUDENTS YOU PAY YOUR DUES. WE'LL PAY YOUR TUITION.



Join the Army's Medical Corps and you can receive a one- to four-year scholarship that provides full tuition, a monthly stipend of over \$1,250 and reimbursement of most academic fees courtesy of the Army Health Professions Scholarship Program. Plus, you'll receive:

- Low-cost life insurance
- Worldwide travel opportunities
- No-cost or low-cost medical and dental care for you and your family
- Rank and privileges of an Army Officer
- Generous non-contributory retirement benefits with 20 years of qualifying service
- Flexible, mobile retirement savings and investment plan

To find out more, or to speak to an Army Health Care Recruiter, call 800-784-8867 or visit healthcare.goarmy.com/hct/50



©2003. Paid for by the United States Army. All rights reserved.