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COMMENTARY

Centennial Thoughts

JOSEPH H. FRIEDMAN, MD
joseph_friedman@brown.edu

In the past few years I have looked forward to this issue of the Rhode Island Medical Journal (RIMJ), the first in its second century of publication. When I took the position as editor-in-chief in January 1999, succeeding the late Stanley M. Aronson, MD, the fate of the journal was uncertain due to cost concerns. It obviously has survived, a justifiable cause for celebration.

During this time, I’ve published columns that were written independent of the content of the journal. Most issues have a theme; for example, cancer updates, cardiovascular disease, hepatitis, etc., and, since the guest editors write an introduction, it obviated the need for an op/ed by me, who knows a lot less about the topic than these experts.

However, for this issue, I was asked to write something related to the symbolism of the 100th anniversary, perhaps looking back over the past century or looking forward to the next. While that might seem like an easy assignment, with lots of choices to focus on, it hasn’t been easy for me. I am not a good predictor.

A few decades ago I confidently predicted that our insurance system couldn’t get worse and would, at some point, have to improve. That prediction was miserably wrong as each year makes the last look better. At this time no one knows what healthcare delivery will look like in the next year, let alone the next hundred. And while Martin Luther King famously noted that the arc of history “bends towards justice,” I have been impressed that the arc of healthcare in the United States does not. I do have some thoughts on the science and practice of medicine, though, having practiced through almost four decades of it. The status of medicine in 2017 strikes me as being much like the opening of A Tale of Two Cities, being the best of times and the worst of times, although, to be honest, not really the worst. Since science never goes backwards, any moment in time that we choose will be the best scientifically. Our knowledge in the medical sciences is astounding, although translating many advances to useful, applicable treatments has lagged.

For example, the gene for Huntington’s disease (HD) was discovered over two decades ago. There is now only one treatment approved for HD, a drug approved only recently, that has been extraordinarily expensive and helpful only for controlling the chorea, a problem that is fairly minor compared to the dementia and behavior problems, and, probably not much better than drugs an order of magnitude or more less expensive.

A large number of other disorders have had their genetic etiologies found, yet none of these advances have yet led to treatments. We have learned a great deal about Alzheimer’s disease, but have not found any drugs of significant benefit for the symptoms and none for the disease itself, although we may be close. On the other hand, for many years monoclonal antibodies were developed that appeared initially to have little benefit but in recent times this technology has produced tremendous clinical advances and promises to deliver on the promise of “precision medicine.”

Psychiatric medications have improved mildly over the past 6 decades but understanding of mechanisms has not. The greatest advances in stroke and heart disease have been the introduction of statins and the increasingly aggressive control of blood pressure and the use of low-dose aspirin. As always, public health investments produce the greatest rewards.

I believe that in the near future genetic technology will allow for precisely targeted treatments of inherited diseases such as Huntington’s disease, various cancers, and other disorders that

In the past few years

ORGANS, EVEN BODY PARTS, MAY WELL BECOME REPLACEABLE. NOT LONG AGO AN EAR WAS “GROWN” USING THE PATIENT’S OWN CELLS.
have genetic etiologies. I expect that interventions will allow “bad” genes to be turned off, or “good” genes enhanced, depending on whether the disorder is a “gain of function” disorder (ie, the abnormal protein is toxic) or a “loss of function” disorder (ie, the abnormal gene leads to under-production of the necessary protein). Of course, I also worry about how the technology will be controlled, whether we will have rich people “ordering” genes for intelligence, appearance, personality, and creativity to be inserted into their baby’s genome.

While antibiotics have improved considerably, particularly for the treatment of viral disorders, the vast numbers of species of microorganisms and their rapid life cycle make their evolutionary speed a real challenge to the development of pharmacological interventions. The occurrence of HIV as a new disease, recent outbreaks of Ebola, or the memory of the great influenza epidemic of 1918 are reminders that we are likely to be attacked by new infectious disorders with novel implications.

Organs, even body parts, may well become replaceable. Not long ago an ear was “grown” using the patient’s own cells. We might well enter an era when organ donations will be an historical footnote, a good idea, but primitive in its application.

I expect that we will get a lot better at making diagnoses. The increased resolution of imaging modalities, particularly magnetic resonance imaging (MRI), has been astounding. When I was in training, I can recall the famous chair of the radiology department joke about MRI, “the test of the future that will always be in the future.” That improvement is likely to continue although how that will alter our practice will have a limit. More important will be imaging modalities that will tell us about biochemistry and physiology. These are already here but are crude. Combined, these technologies may well produce the whole body scan from Star Trek, followed by computer-guided, robotic surgery or other treatments.

I don’t view this as a rosy future, however. Aside from the worries over genetic engineering, I have concerns about costs and their implications for healthcare, as well as what it will mean to have an increasing and increasingly aged population. The threat of an over-abundance of riches has Malthusian implications. The half full cup is also half empty.

The underlying concerns over the future of American medicine, and possibly the future of mankind, center on mankind itself. Our science is evolving at an ever-increasing pace, but humans are not. We are the same people, with the same limitations as our cave dwelling ancestors.

Author
Joseph H. Friedman, MD, is Editor-in-chief of the Rhode Island Medical Journal, Professor and the Chief of the Division of Movement Disorders, Department of Neurology at the Alpert Medical School of Brown University, chief of Butler Hospital’s Movement Disorders Program and first recipient of the Stanley Aronson Chair in Neurodegenerative Disorders.

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RIMJ Centennial: A personal reminiscence of a 20th-Century nurse

MARY KORR
RIMJ MANAGING EDITOR

On this centennial of the Rhode Island Medical Journal, thoughts of my mother come to mind. She was born on January 18, 1918, one year after the Journal was first published.

A hospital and public health nurse in New York City, she lived much of what is described in this special edition: the maladies, miracles and medical preparedness of the 20th Century.

Mom often said she became a nurse because of her oldest sister, Lillian, who contracted tuberculosis as a young woman. Lillian was 20 and about to marry a young man named Joe. As her condition deteriorated, she was placed in a sanatorium. Mom would visit her every weekend, with her mother and Joe. Her desire to become a nurse stemmed from that experience.

When Lillian died of TB, and mom was old enough, she decided to go to nursing school, and three years later she graduated. It was during World War II, and she spent her post-graduate years working in hospitals in New York. There was a shortage of nurses and doctors, who were engaged in the war effort, and she often told me how strenuous it was, standing on her feet for 12-hour shifts, six days a week, taking the subway and bus home, and then going to volunteer at the Red Cross center to roll bandages and pack medical equipment to be sent overseas.

Mom was dedicated to her profession, proud of her nursing school’s distinctive cap and pin and navy blue wool cape, which she wore to work every day that I can remember as a child. But she told me not to become a nurse. “You have to stand too much,” she said. “Do something with books, or writing, where you’re not on your feet all day.”

Eventually, after college, I decided on journalism and entered graduate school. On the first day of J-School Professor Taft asked each student, many pursuing second careers, to rise and explain what made us decide on a career in journalism, and who influenced us the most in this endeavor.

Answers flew: To travel the world as a foreign correspondent...to investigate corruption...Watergate...Walter Cronkite...Woodward & Bernstein...Gloria Steinem...

I said, “I like to write and my mom.”

“Is she a newspaper journalist?” Professor Taft asked.

“No, a nurse. But she told me to be a writer or else something with books, where you don’t have to stand on your feet all day long for 12 hours at a time.”

“Sit down, young lady,” he said. He was very stern.

“Yes, sir,” I said, “Mom would like that.”

I know mom would enjoy reading this Centennial issue of the Journal, because the era covered within its pages was her era. She was a proud member of the medical community during those tumultuous times of wars and epidemics.

When she stopped working at the age of 70, she continued to volunteer in her
local community hospital. She wheeled a cart of books to patients’ rooms, and asked if she could read to them. She finally got to sit down in a hospital.

During her retirement years, she would visit us more frequently in Rhode Island. Once when she and my sister came to visit, they decided to drive to Cape Cod for the weekend. As they walked past a church, mass was getting out and mom spotted him. Joe. Her sister’s fiancé. She walked up to the church steps where Father Joe was greeting his parishioners.

“Joe,” she said. “I can’t believe it’s you.”

“Jeanne,” he said. My sister said he looked stunned. They hadn’t seen each other since 1940. From that point on, they corresponded.

And so, on this occasion of the Centennial of the Journal, I will conclude by saying, happy 100th birthday RIMJ – long may you live – and happy 99th birthday to my mom, who passed away 11 years ago.

Somewhere, I know she is sitting with a cup of coffee and reading a book or newspaper or perhaps this issue of the Journal, if there is celestial connectivity, enjoying a well-deserved rest from a lifetime in the medical profession (and raising four children). ✤

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At a Glance:
RIMJ’s Editors of Yesteryear

MARY KORR
RIMJ MANAGING EDITOR

This edition celebrates the Centennial of the Rhode Island Medical Journal (RIMJ), first published in January 1917. It succeeded the bi-monthly Providence Medical Journal, which debuted in 1900.

In the inaugural edition, Editor Dr. Roland Hammond stated:

“The King is dead. Long live the King! ... We wish all the medical interests of the state to collaborate in the production of a journal which shall truly represent the state in reality as it does in name. As our literary miss makes her bow under her new name, we bespeak for her a hearty support, believing that her sphere of usefulness is to be greatly increased.”

During RIMJ’s history, there have been just eight editors. The following is a brief look at the seven physicians who preceded the current editor-in-chief, JOSEPH H. FRIEDMAN, MD. They shared a passion for their profession and the Journal’s mission as stated by Dr. Hammond.

**ROLAND HAMMOND, MD**
**(1875-1957)**

YEARS AS EDITOR: 1917-1920

MEDICAL SCHOOL: Harvard, Class of 1902

SPECIALTY: Roentgenologist, orthopedic surgeon at Rhode Island Hospital, Memorial Hospital (chief of surgery)

TIMELINE: Dr. Hammond hailed from Bellingham, Mass. A member of the U.S. Naval Reserve Force, he served in the Harvard Units in Ireland and London in WW II. The war forced the Journal, depleted of most of its editorial staff, to cease publication for 16 months, resuming in December 1920.

EX MEDICO: A Baker Street Irregular

In 1946, Dr. Hammond co-founded “The Dancing Men of Providence,” a scion society of the Baker Street Irregulars (BSI), an organization dedicated “to perpetuate the myth that Sherlock Holmes is not a myth.” He was invested under the name Silver Blaze, a horse in one of Conan-Doyle’s mysteries.

Dr. Roland Hammond was present at the Baker Street Irregulars’ dinner on January 3, 1947 held at the Murray Hill Hotel in New York. One of 70 present, the bespectacled surgeon is shown here in last row, fifth from right.
FREDERICK N. BROWN, MD
(1863–1942)
YEARS AS EDITOR: 1920–1936
MEDICAL SCHOOL: Dartmouth Medical College, 1894
SPECIALTY: Internal Medicine. Described by a colleague as a physician of the old school who embodied “those virtues which have made medicine a noble and ennobling profession.”
TIMELINE: Born in Coventry, RI, Dr. Brown, to earn money for medical school, first worked as an oil salesman in Providence, and in poor circumstances after graduation from medical school, was employed by the Indo-American Co., in Calcutta, India, for three years.
EX MEDICO: One of the first physicians to use an automobile, rounding in his small Maxwell car.

ALBERT H. MILLER, MD
(1872–1959)
YEARS AS EDITOR: 1937–1942
MEDICAL SCHOOL: College of Physicians and Surgeons at Columbia in New York City, 1898
SPECIALTY: Anesthesiologist
TIMELINE: In 1898, the Lewiston, Maine, native came to Rhode Island Hospital to intern and graduated in 1901. A Department of Anesthesia was established with the appointment of Dr. Miller, who introduced induction of anesthesia with nitrous oxide prior to etherization.
EX MEDICO: A skilled illustrator and photographer, Dr. Miller photographed surgical procedures as a medical student at “P. and S.” Devised a camera that could capture photographs at different stages of an operation without a pause by the surgeon.

PETER PINEO CHASE, MD
(1877–1956)
YEARS AS EDITOR: 1942–1956
MEDICAL SCHOOL: Harvard, Class of 1910
SPECIALTY: Surgeon, Rhode Island Hospital; served in the Harvard Units in WWI and WWII.
TIMELINE: Dr. Chase grew up on Cape Cod. In 1942, he became RIMJ’s editor-in-chief. Wherever Rhode Island physicians served in World War II, Dr. Chase made sure the Journal was forwarded to them. He introduced two features, “Doctors at War” and “Calling all Battle Stations,” which reported news from the front. After the war, Dr. Chase traveled to Germany with the International Refugee Organization (IRO) to participate in displaced physicians’ retraining courses.
EX MEDICO: For many years, Dr. Chase also wrote a health column in the daily press. On June 30, 1952, Time magazine described his column as “never stuffy, often irreverent, it reflects the Yankee horse sense of its author, Dr. Peter Pineo Chase. Dr. Chase’s horse sense comes out, literally, in his answer to a woman who wrote in recently about chlorophyll pills as deodorants. ‘You should have been with me in my school days, when I took my horse, Pilot, in from the field where he had been cropping chlorophyll-laden grass and drove him on a hot day until he reeked with sweat. He stank.’ ”
JOHN E. DONLEY, MD (b. 1880)

YEARS AS EDITOR: 1956-1960

MEDICAL SCHOOL: University of Pennsylvania, 1902

SPECIALTY: Neuropsychiatry; a pioneer in the field of hypnosis; medical director of the RI Curative Center for disabled workers, established in 1943 (now the John E. Donley Rehabilitation Center on Blackstone Blvd.); consulting physician to St. Joseph’s Hospital, Providence City Hospital, and Pawtucket Memorial Hospital; assistant editor of the Journal of Abnormal Psychology, Boston.

TIMELINE: A Providence boy, son of a jewelry manufacturer.

EX MEDICO: Cited in 1953 by President Eisenhower’s Committee on National Employ the Physically Handicapped Campaign for his “outstanding service to the disabled” in Rhode Island.

SEEBERT J. GOLDSKY, MD
(1907–1997)


MEDICAL SCHOOL: Harvard, Class of 1932

SPECIALTY: General surgery, Rhode Island Hospital, director of peripheral vascular disease clinic; The Miriam Hospital, chief of surgery

TIMELINE: Born in Providence, the son of a detective. Attended college and medical school during the Great Depression. During World War II, Capt. Goldowsky was a surgeon in the Pacific Theater.

EX MEDICO: Author of seminal biography of Rhode Islander Usher Parsons, MD, who served as naval surgeon on a ship under Commodore Oliver Hazard Perry at the battle of Lake Erie. (Yankee Surgeon: The Life and Times of Usher Parsons, 1788–1868).

STANLEY M. ARONSON, MD
(1922–2015)


MEDICAL SCHOOL: NYU College of Medicine, 1947

SPECIALTY: Neuropathologist. Key to the establishment of diagnostic laboratory test for Tay Sachs Disease and Muscular Dystrophy.

Director of Pathology, Miriam Hospital. Founding dean of Brown Medical School (1972-1981), co-founder of Hospice Care of Rhode Island and the Interfaith Health Care Ministries.

Numerous honors, awards, professorships, NIH Commissions, author of 15 textbooks and 400+ published scientific papers.


EX MEDICO: Described as a polymath. Painter, cabinetmaker, gardener, newspaper columnist, author, medical historian.

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New reprint available on cigarette research—Archives of Otolaryngology, March, 1933, pp. 484-10.

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1917
The Committee of American Physicians For Medical Preparedness urged the state’s physicians to contribute $1 each to secure medical and surgical supplies for the war effort. The group thanked Butler, Rhode Island and Memorial hospitals, druggists and individual physicians for donating old and discarded instruments for use in the battlefield hospitals in France.

1920s
Surgical lessons of the ‘Great War’ were reported. It was noted that “probably no department of the army was hit harder than the medical; for the great principle on which its work was based was proved in a few weeks to be useless when applied to conditions incident to trench warfare. Asepsis fell down.” Dr. Murray Danforth wrote about advancements in the surgery of the extremities from his experiences in France.

1930s
In 1936, Dr. Meyer Saklad read a paper on the “Important Aspects of Anesthesia” to the Pawtucket Medical Association. He explained the use of cyclopropane in anesthesia, hypnotics in local anesthesia, and the uses of helium gas in asthma attacks and in newborn infants.

In August 1936 Dr. Cecil C. Dustin of Providence reported on the Heart Clinic of Rhode Island Hospital, established in 1926. He reported 8,000 visits in 10 years; many patients were children with rheumatic and congenital heart disease. All patients received electrocardiograms, fluoroscopy and chest films. He reported a dire need for a facility to accommodate chronic heart disease patients.

In May 1955, a RIMJ editorial reported on the results of vaccinating 1,830,000 schoolchildren, ages 6 to 8, in 44 states, for polio, and concluded the vaccine was “60–90% effective.”

1940s
Radio station WPRO ran 15-minute health segments every Sunday at 1:30 p.m. which were very popular with listeners. In July 1942 Dr. Kathleen Barr spoke on the role of the women physician. In December of that year Dr. Charles Bradley spoke on bombs and children. On January 20, 1943, members of the U.S. Army’s 48th Evacuation Hospital from Rhode Island Hospital left for the China-India-Burma (CBI) Theater of World War II to establish a 750-bed semi-mobile evacuation hospital along the Ledo Road, an overland route to China. By 1945, the 48th unit in Burma had admitted slightly more than 37,500 patients: 7,500 Americans, 2,000 Indians and 28,000 Chinese.

1950s
In July 1953, Louis Weinstein, MD, [Associate Professor of Medicine, Boston University School of Medicine] spoke in Rhode Island on “What the Practitioners Should Know About Poliomyelitis.” He discussed diagnosis, paralytic and non-paralytic cases, poliomyelitis, and treatment.

In 1966, two End Measles Sundays were held in Rhode Island. Despite severe snowstorms, almost 35,000 children were vaccinated. In 1967, Dr. James E. Bowes, director of the division of epidemiology at the RI Dept. of Health, reported the campaign reached 67 percent of an estimated 52,000 susceptible children aged 1–12 years. The single-dose, further-attenuated live virus measles vaccine was used at 37 clinics. During 1966, only 75 cases of measles were reported in Rhode Island, in contrast to a median of 3,652 cases for the previous 5 years, a reduction of 97 percent, Dr. Bowes reported.

1970s
On March 27, 1976, Hospice Care of Rhode Island was formally established. Acceptance by the medical profession was slow. Bruno Borenstein, MD, observed: “To most doctors, hospice represented a whimsical, pseudo-religious voluntaristic thing without real shape, without real substance or form.”
In the early years, only patients with advanced cancer were accepted; but by 1997 patients with stroke, dementia and other organic disorders, no longer amenable to therapy, were being accepted. Stanley M. Aronson, MD, one of its founders, later said: “Help one struggling person to reach some peace of mind, even for a few fleeting days, and you will have enriched the world.”

### 1980s

Dr. Richard A. Carleton started The Pawtucket Heart Health Program on August 1, 1980, a research program funded by the NIH, to “induce behavioral change in entire populations” to reduce cardiovascular disease.

In August 1987, RIMJ reported that The Miriam Hospital had appointed Charles C.J. Carpenter, MD, physician-in-chief, previously Chairman of the Department of Medicine at Case Western Reserve University School of Medicine. It noted he was a prominent international figure in the study of the pathophysiology of enteric infections.

The AIDS Epidemic was the subject of many articles in this decade. The January 1987 issue focused on AIDS and the blood supply, prevention, clinical manifestations and public health strategies.

### 1990s

The July 1992 issue focused on women’s health. Joanne F. Liutkus, MSW, MD, and Karen Rosene Montella, MD, wrote: “Women’s health is in vogue as a “new” specialty in medicine. Why is this happening now? The history of women’s health care has been one of neglect and indifference by the traditional medical and funding establishments... Two separate but related themes have been present throughout this history: women striving for positions of power as doctors and nurses, and women striving for power over their bodies and health care choices.”

The VA Computerized Patient Record System (CPRS) was launched in 1995 by the VA that included better use of information technology, measurement and reporting of performance, and integration of services; it was implemented nationally throughout the VHA in 1999, including at the Providence VA Medical Center.

### 2000: The Millennium

In July 2003, Robert Woolard, MD, prepared two issues on disaster preparedness. He wrote: “After 9/11/01, physicians, health care workers, public officials and the public at large want to know whether we are prepared for other foreseeable terror-related disasters. This issue describes many of the pre-hospital and emergency medicine efforts that have made us prepared in RI. Many of these efforts will continue into the next few years. No doubt we are better prepared than before 9/11/01 and will be even better prepared over the next two years as an anticipated $11,000,000 flows into R.I. from Homeland Security and other sources.”

### 2010–Present

Elaine C. Jones, MD, wrote a commentary on the 2010 Health Care Reform Act and stated, “Dramatic changes are being proposed in health care delivery in the United States and the main driver is reducing costs. Numbers can be debated, but everyone understands that the rising cost of health care cannot be maintained. What people can’t agree on is how to make changes that will contain cost while maintaining quality.”

Philip A. Gruppuso, MD, wrote in an issue on medical education that on April 26, 2010, a groundbreaking ceremony celebrated the start of construction that will culminate in the opening of a new Alpert Medical School building in August 2011. “This project will represent the first dedicated space for Brown’s medical school since its founding thirty-five years ago. The facility is being constructed within an existing building at 222 Richmond Street in Providence’s Jewelry District.”
Appointments

**Providence City Hospital**
The clinic for the diagnosis and treatment of syphilis has recently been placed under the direction of Drs. H.W. Kimball and Niles Westcott. The clinic is open for men on Tuesday evening and for women on Thursday evening. Intravenous treatment is administered three times a week, on Tuesdays, Thursdays and Saturdays in the morning. From 50 to 60 such treatments are given in a week.

**Rhode Island Hospital**
Delos T. Bristol, MD, has accepted an appointment at the Boston Lying-In Hospital.
A. K. Hanchett, MD, has returned to his home in Honolulu, Hawaii, where he will confine his practice to internal medicine.

**St. Joseph’s Hospital**
Dr. Isaac Gerber has been appointed consulting Roentgenologist.
Dr. Roland Hammond has resigned as Assistant Orthopedic Surgeon, and has been appointed Consulting Orthopedic Surgeon.

Miscellaneous

By invitation of H. P. Hood & Sons the members of the Rhode Island Medical Society visited the Model Milk Plant of that firm in West Lynn, Mass, on December 14, 1916.

**Memorial Hospital**
The new Outpatient Building has been completed and is in use, and a central heating plant with oil-burning system has been installed.

**WWI: Harvard Unit**
Dr. Lucius C. Kingman has recently returned from France, where he has been serving as a member of the Harvard Surgical Unit.
Drs. George A. Matteson and Herman C. Pitts are at present with the Harvard Unit, and Dr. P. P. Chase sails for France February 17 to join the Unit.
Dr. Charles F. Gormly sailed for England, January 19th, to engage in hospital work.
Dr. James V. Ricci leaves for England February 15. He will engage in medical work for the British Government.

Necrology

**Civil War Veteran**
Dr. Albert E. Ham, for many years prominent in the medical fraternity and a Civil War veteran, died at The Minden January 24, 1917, after several weeks’ illness. He was born in this city July 23, 1843; graduated from Brown University and the College of Physicians and Surgeons in New York.

After a year of study in Paris, he commenced to practice in this city. He was house physician, surgeon, pathologist and librarian, also visiting and consulting physician and surgeon at various times for the Rhode Island Hospital, consulting physician and surgeon at St. Mary’s Orphanage and the Providence Dispensary.

In 1862 he enlisted for three months in Company D, Tenth Regiment, Rhode Island Volunteers, and since 1876 had been examining surgeon for pensions.
Dr. Ham was at one time President of the Providence Medical Association, a member of the Rhode Island Medical Society, the Rhode Island Hospital Club, the American Academy of Medicine and the American Medical Association.

Letter To The Editor

**On license reciprocity**

To the Editor:

I was very glad to see your article in the November issue of the Providence Medical Journal calling attention to the need for reciprocity between Rhode Island and the other States. I am in very much the same position as Dr. A., to whom you refer. I have been in practice over 30 years, a Fellow in good standing of the Rhode Island Medical Society and of one of the District Societies, and licensed to practice under the State law. Some years ago on account of ill health I was obliged to give up my practice and go to sea, sailing from the port of New York.

I should like very much to be licensed to practice in New York, but while I feel perfectly competent to practice successfully, I know it is out of the question to pass an examination intended for recent graduates, up to date on all recent theories, etc., etc.

I hope you will continue to urge through your publication the need of reciprocity, and would gladly aid such a movement in any way I could.

Yours very truly, T.
An X-ray unit combining beauty of design, high quality of workmanship, ruggedness of construction, and efficiency... Permits the physician to complete diagnostic roentgenography and fluoroscopy in his own office... Operates on 115-120 V., 50-60 cycle A. C. without special wiring... Highly flexible, shockproof, long-lived, and simple to operate.

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COMBINATION ROENTGENOGRAPHIC and FLUOROSCOPIC UNIT
Made by PROFESSIONAL EQUIPMENT COMPANY Chicago
A Chronology of Rhode Island Hospitals

1847
**Butler Hospital**
In 1844, Nicholas Brown declared that he wished to construct an asylum for the mentally disturbed “where any person regardless of class or religion could better themselves.” For this laudable purpose, his will provided $30,000. A request was sent to Cyrus Butler, who agreed to donate $40,000. Architects William Tallman and James Bucklin designed a Victorian Gothic structure in a park-like setting on Providence’s East Side off Blackstone Blvd., with the landscaping designed by Frederick Law Olmsted, who also designed New York’s Central Park. The trustees of the institution chose a physician, Isaac Ray, as the first superintendent of the hospital.

1862-’65
**Lovell General Hospital**
In Portsmouth Grove, served as a hospital for Civil War veterans.

1868
**Rhode Island Hospital**
Opened on October 1, through the generosity of the community, beginning in 1857 with a bequest by Moses Brown Ives to establish a fund for a general hospital in Rhode Island. The Ives family provided $75,000 for construction of the hospital. A total of $305,000 was eventually subscribed and construction was begun in December of 1864. The building consisted of a central unit housing the administration, chapel, auditorium, library, kitchens and central apothecary, and two wings extending in a north-south direction. The wards were spacious 24-bed units with adequate ventilation and sunlight. The board authorized the opening of about 70 beds to serve the immediate medical needs of the Providence population, then about 70,000.

1873
**Newport Hospital**
Chartered in 1873, a site was purchased on Friendship Street, the hospital opened November 22, 1873. During 1895–1896 four new wards were added to the hospital; the Vanderbilt ward for men, the Ledyard ward for women and children, the Carey ward for paying patients, and the Vanderbilt surgical building. Departments for treatment of eye and ear diseases opened in 1896.

1878
**Roger Williams Hospital**
Founded in 1878 as a homeopathic facility; moved to Chalkstone Avenue in 1925 and built a school of nursing soon after.

1884
**Rhode Island Homeopathic Hospital**
Located in the castellated English style granite mansion once home to Charles and Isabelle Nichols on Morris and Hazard Avenues on the East Side. A new surgical building was subsequently erected and the stable reconstructed for use as a contagious cottage. Closed in 1900.

1885
**Providence Lying-In Hospital, Now Women & Infants**
Opened July 15 on Slocum Street in the former General James estate in Providence; relocated two years later to 96 State Street. The first house physician was Dr. E. Flood; admitting physician, Dr. K. II. Carver, matron, Elizabeth Huggins. At the time of the first report, in 1887, 54 children had been born and no mother’s death had occurred.
In 1926, the hospital moved to 50 Maude Street, and remained there for 60 years. In 1986, Women & Infants Hospital was built as its successor in a new facility on Dudley Street in Providence.

1888
**Woonsocket Hospital**
Chartered in 1873, the hospital opened in September of 1888 with six consulting physicians and surgeons, three nurses and 26 beds.

1892
**St. Joseph’s Hospital**
[Above] Opened by the Roman Catholic Diocese of Providence in the old 3-story Harris Estate along Broad Street between Peace and Plenty Streets for the “sick, poor and suffering.” Shortly replaced by a 175-bed hospital building designed by Gilbane and Brothers on adjacent land.
1909

**NAVAL HOSPITAL**
Built in 1909 in Newport. Closed circa 1990; patients then sent to the newer nearby naval clinic.

1910

**MEMORIAL HOSPITAL**
[Above] The Pawtucket hospital was funded by a $200,000 gift from William F. Sayles, after his death in 1894. Located on a 10-acre Prospect Street site, with a memorial hall, red-tiled roof and dome. The first patients were seen in October 1910. There were two 8-bed wards, for men and women, and private rooms.

**PROVIDENCE CITY HOSPITAL**
[Above] Opened to treat patients with contagious diseases, later renamed the Charles V. Chapin Hospital. The building is now part of the campus of Providence College.

1919

**SOUTH COUNTY HOSPITAL**
The hospital was founded in 1919 in a small, private home. A new facility was built in 1925 on 6 acres in Wakefield.

1922

**HOMEOPATHIC HOSPITAL OF RHODE ISLAND**
[Right] Breaking ground on May 12, 1922. A series of smaller homeopathic hospitals existed in Providence from the late 1800s on. In 1904, there was both a hospital and dispensary on Jackson Street, Providence.

1925

**WESTERLEY HOSPITAL**
[Below] Opens as a community hospital. Previously some surgical patients were sent to the Westerly Sanatorium, opened in 1910 by a Dr. John Champlin, a member of the Westerly Medical Society, in the hopes it would be a precursor to a general hospital. The second floor operating room was open for use by any surgeon.

**THE MIRIAM HOSPITAL**
[Right] Funded by the Jewish community, opened on November 15, 1925 in a converted apartment building at 31 Parade Street with 63 beds and 14 bassinets. In 1944, purchased the former Jewish Orphanage of Rhode Island on Summit Avenue; opened there in 1952 with 150 beds.

**NOTRE DAME HOSPITAL**
Opened on Broad Street in Central Falls funded by public subscription of members of the French-Canadian parishes throughout the Blackstone Valley.

1931

**BRADLEY HOSPITAL**
Located in the Riverside section of East Providence, founded in 1929 and opened two years later as the nation’s first neuropsychiatric hospital for children, funded by George and Helen Bradley, and named after their daughter, Emma Pendleton Bradley.

1948

**PROVIDENCE VA MEDICAL CENTER**
Constructed for veterans after World War II.

1951

**KENT COUNTY MEMORIAL HOSPITAL**
The Warwick hospital was chartered by the State in 1946, and opened in 1951 with 90 beds.

1954

**OUR LADY OF FATIMA HOSPITAL**
Opened by the Diocese of Providence in North Providence with 175 beds for chronically ill patients; became a general hospital in 1955. By the end of the 1960s, St. Joseph and Fatima hospitals merged.

1962

**JOHN E. FOGARTY MEMORIAL HOSPITAL**
Iconic circular building, named after Congressman John E. Fogarty, a healthcare champion, opened in Exeter on the grounds of the Ladd School. Later demolished.

1988

**LANDMARK MEDICAL CENTER**
Created as a merger between Woonsocket Hospital and Fogarty Hospital of North Smithfield.

1994

**HASBRO CHILDREN’S HOSPITAL**
The hospital opened on Valentine’s Day 1994 in Providence, funded by the Hasbro Charitable Trust and other foundations and corporations.
By changing the attitude of the emotional dermatologic patient, ‘Thorazine’ facilitates the management of the patient and the treatment of skin disorders. The patient becomes less insistent and frantic, and accepts her affliction philosophically. ‘Thorazine’ does not cure skin diseases but, according to Cornbleet and Barsky, ‘is a “most useful adjuvant to dermatologic therapy” in patients with an emotional background of tension, apprehension, excitement, anxiety and agitation.’

**THORAZINE**

“can be to the dermatologist what the anesthetist is to the surgeon.”

*Smith, Kline & French Laboratories, Philadelphia*


Rhode Island’s First Hospitals

STANLEY M. ARONSON, MD

Seaports were colonial America’s first great centers of commerce and industry. But because of their maritime traffic, they were also America’s sites of entry for the devastating contagions of the 17th and 18th centuries. Each new epidemic of smallpox in Boston, for example, began with a sailing vessel disembarking someone in the acute, communicable phase of smallpox. And thus Boston experienced sustained epidemics of smallpox in 1677, 1689, 1702, 1721, 1751 and 1775.

Newport, in the early years of the 18th century, was Rhode Island’s leading port as well as its commercial center. Smallpox first entered the community in 1716 via an arriving merchant vessel. In addition to the customary quarantine measures for those stricken with smallpox, Newport constructed a small infirmary on an offshore island. This modest undertaking represented Rhode Island’s first attempt at providing its very sick with both isolation and rudimentary protection from the elements; this primitive house of contagion was Rhode Island’s first hospital.

In 1752, Providence established its own smallpox hospital. And in the next five decades the city at the head of Narragansett Bay built two more so-called fever hospitals consisting of little more than dormitories and attached kitchens. Yet another epidemic scourge invaded Providence in 1798, a puzzling disorder called yellow fever. Under the mistaken presumption that the disease was directly communicable, the city hastily constructed a two-story house on the western shore of the mouth of the Providence River to isolate victims of the disease. The yellow fever epidemic abated rapidly and the city, left with an empty fever house, designated it as a marine hospital solely for the care and housing of disabled shipboard personnel.

In the years immediately preceding the Civil War, Rhode Island relied almost exclusively on the home for the care of its very sick. There also was an institution, built in 1828, called the Dexter Asylum for Paupers. This was an ill-conceived institution which, in the words of one local physician, was an overly crowded dwelling for the city’s paupers, the victims of debauchery, the uncontrollably insane, homeless women in labor, and the many malnourished immigrants recently arrived from Europe. There was, in addition, the excellent Butler Hospital, built in 1847, but it confined its admissions to the mentally ill.

Since hospitals are sometimes constructed as adjuncts to medical schools, Rhode Island had an opportunity to establish a general hospital of its own when Brown inaugurated New England’s third medical school (Harvard, 1782; Dartmouth, 1798). It was a modest effort with a faculty of three and a small campus building housing an anatomy amphitheater, a pathology museum, a small library and a few classrooms. The faculty maintained private practices and some of their patients were sometimes used for didactic purposes. But until medical students had access to a hospital ward, their education would remain a bloodless sequence of blackboard exercises. The Brown medical school accepted its first students in 1811, trained almost 100 physicians in the next 16 years, but then closed its doors in 1827 because of a dispute between faculty and administration. And thus a possible stimulus for the establishment of a general hospital in Rhode Island was lost.

The practicing physicians of Rhode Island had repeatedly appealed both to the state legislature and the philanthropic community for funds to construct and maintain a hospital within the state, but to no avail. During the early decades of the 19th century Providence citizens identified the grim Dexter Asylum as its sole inpatient facility, but more in shame than pride.
THOMAS POYNTON IVES

A Brown University graduate, Thomas Poynton Ives (class of 1854), was the initiating force which finally accomplished the task of building a fine general hospital for Providence. Ives had been trained at the College of Physicians and Surgeons in New York and was then apprenticed to Dr. J. Ely, a prominent Providence practitioner.

The economic disaster of 1857, with the closing of many of the local textile factories, and the Civil War of 1861 effectively aborted any efforts to build a local hospital. Prodded by the Ives family, the Rhode Island legislature finally incorporated the Rhode Island Hospital in 1863 and donated the 12 acres of the old marine hospital for its site. The Ives family provided $75,000 for construction of the hospital.

A total of $305,000 was eventually subscribed and construction was begun in December of 1864. This effort represented the largest single charitable drive in the state’s history. The architects envisioned a handsome dark brick building, some three stories high in the Italian Gothic style with two distinctive and imposing steepled towers. The building consisted of a central unit housing the administration, chapel, auditorium, library, kitchens and central apothecary, and two wings extending in a north-south direction. The wards were spacious 24-bed units with adequate ventilation and sunlight. The board authorized the opening of about 70 beds to serve the immediate medical needs of the Providence population, then about 70,000. The original hospital had an eventual capacity of about 120 beds.

On the first day of October 1868, the Rhode Island Hospital opened its doors. On October 6 John Sutherland, a local shoemaker, was the first patient to be admitted. He suffered from a deep abscess of his jawbone. Surgery was successfully undertaken and within two months he walked out of the hospital.

Rhode Island Hospital has kept its doors open, without interruption now, for almost a century and a half. *
Butler Hospital: A Tradition of Empathy

STANLEY M. ARONSON, MD

“How unjust and absurd it is to deprive them of their liberty and seclude them from their customary scenes and enjoyments before they have violated a single human law.”

— Dr. Isaac Ray

Butler Hospital, on Providence’s East Side, received its first patient in 1847 and has been serving the region ever since. By studying the societal perception of mental disease during that era and then understanding the circumstances that prompted two Rhode Island philanthropists to initiate its construction, one can best appreciate the uniqueness of this Rhode Island institution.

In the early 19th century there were institutions (often called almshouses) for the confinement of the mentally ill. But these institutions, essentially human warehouses, were designed more to segregate the allegedly insane than to provide for their compassionate treatment. Insanity was thus classified with criminal and violent behavior as a threat to the tranquility of the community.

What were the stated goals of those institutions? First, to ensure the security of the urban community. Second, since aberrant mental behavior was considered to be a departure from normal morality, it stood to reason that interventions within the asylum should be designed to correct, or at least nullify, these moral anomalies, beginning with physical restraint and punishment. And further, since mental derangement was considered primarily hereditary, another function of the 19th-century asylum was to prevent pregnancy in its female inmates.

Voices for enlightened care of the mentally ill were tragically few. There was the indomitable Dorothea Dix begging legislature after legislature: “Have pity upon them; for their light is hid in darkness, and trouble is their portion.” And a Massachusetts physician, R.C. Waterston: “Disease should be met with pity, not with punishment; and of all diseases, surely there is none more worthy of compassion than that under which the lunatic suffers.”

In 1844, Nicholas Brown of Rhode Island declared that he wished to construct an asylum for the mentally disturbed “where any person regardless of class or religion could better themselves.” For this laudable purpose, his will provided $30,000. A request was sent to Cyrus Butler, who agreed to donate $40,000 for such an institution.

The architects William Tallman and James Bucklin then designed a Victorian Gothic structure in a park-like setting, with the landscaping designed by Frederick Law Olmsted (1822–1903), who also designed New York’s Central Park. The trustees of the institution chose a physician, Isaac Ray, as the superintendent of the hospital.

DR. ISAAC RAY

Dr. Ray was born in Beverly, Massachusetts, on January 18, 1807, during the Jefferson presidency. The Rays (sometimes spelled Wray or Rae) were New Englanders since Daniel Ray emigrated from England to Massachusetts in 1630. Isaac was an unusually scholarly youngster and instead of pursuing the maritime trades of his ancestors, he went to Phillips Academy in Andover, Mass. It was then a highly religious institution where students’ waking hours were fashioned “to correct and improve their bodies, minds and souls.”

Ray then returned to Beverly for an apprenticeship in medicine with Dr. Samuel Hart, a local physician. After further studies in Boston and lectureships at Harvard, he enrolled in Bowdoin College’s medical school. Dr. Nathan Smith of Rehoboth, Mass., who made a hobby of founding medical schools, having also created them at Dartmouth, Yale and Vermont, was its founder.

Ray continued his medical education in Paris and then settled in Eastport, Maine, where he established a private practice. In 1840 Maine opened its first hospital for the insane, with Ray as its superintendent.

The visionary philanthropists of
Rhode Island, realizing the morally corrupt nature of most asylums for the mentally ill, sought the guidance of Dr. Luther Bell, then superintendent of McLean Hospital, in Belmont, Mass. He recommended that Ray be appointed to head the new hospital in Providence. Ray accepted the invitation and, with Bell, returned to Europe to inspect the institutions for the care of the insane in England, France and Germany.

Ray returned to Providence to devote the rest of his professional life to the administration of Butler Hospital and the humanitarian care of the emotionally disturbed. He declared: “How unjust and absurd it is to deprive them of their liberty and seclude them from their customary scenes and enjoyments before they have violated a single human law.” Accordingly, his hospital encouraged a home-like atmosphere with such amenities as supervised walks in a lovely park, occasional music and other environmental comforts to encourage serenity rather than inner turmoil and “innocent pleasures rather than ascetic constraint.” He deplored how other insane asylums acted as prisons. “The patient is as effectually cut off from the world as if laboring under a contagious disease for which a lifelong quarantine is required.”

Ray wrote extensively on the many forensic and environmental factors that encouraged derangement, including social stress, excessive alcohol use and exhaustion. Much of his research pertained to the causes of mental disease. He urged suspension of judgment rather than facile explanation. “The less that is really known, the more obscure and mysterious this seems…the more disposed we are to accept the suggestion of the imagination, rather than a candid confession of ignorance.”

In 1866, Ray retired because of failing health. In his three decades of labor in Rhode Island, he had fashioned a great institution that acknowledged the innate humanity of all patients and operated on the simple premise that compassion rather than punishment is a more effective therapy for the mentally ill.
“All Interns are Alike”

It stands to reason. They all go through the same training; they all have to pass the same tests; they all have to measure up to the same standards; they all are underpaid, too. Therefore, all interns are alike.

That’s utter nonsense, of course. But it’s no more nonsensical than what some people say about aspirin. Namely: since all aspirin is at least supposed to come up to certain required standards, then all aspirin tablets must be alike.

Bayer’s standards are far more demanding. In fact, there are at least nine specific differences involving purity, potency and speed of tablet disintegration. These Bayer standards result in significant product benefits including gentleness to the stomach, and product stability that enables Bayer tablets to stay strong and gentle until they are taken.

So next time you hear someone say that all aspirin tablets are alike, you can say, with confidence, that it just isn’t so.

You might also say that all interns aren’t alike, either.
Crawford Allen Memorial Hospital: Helping Children Heal by the Sea

Early 20th-century hospital served children with bone and joint TB, other crippling infections

MARY KORR
RIMJ MANAGING EDITOR

The Crawford Allen Memorial Hospital in North Kingston, a seashore branch of Rhode Island Hospital, opened in 1907 under the direction of superintendent JOHN M. PETERS, MD.

Located on 106 acres overlooking Narragansett Bay, in the area of Quidnessett, the property history traces back to the Narragansett Indians. Here tribal families spent the warm days and cool evenings of summer, camping along the coves and inlets, and fishing in the clear, warm waters in the place they called Cocumcussoc or Aquidesit, meaning at the small island or park.

and joint tuberculosis, as well as other infectious bone diseases. There were a few medical cases as well.

The seashore hospital, rooted in a French experiment 50 years prior, with similar institutions in Baltimore, Atlantic City and Coney Island, was open from May to November. The children, in wheelchairs, on crutches, or with hip braces, spent the entire day outside and in a wooden pavilion by the shore. The bungalow-style seaside space had a living and dining room, kitchen, a porch used as an outdoor classroom, and a large uncovered platform where the children who were unable to leave their cots spent the day. Whenever the water temperature rose to 70 degrees, the children bathed in the sea; nurses wheeled those unable to walk into the water on adaptive platforms or carried the littlest ones in baskets.

In 1907, Anne Allen Brown, widow of John Carter Brown and daughter of Rhode Island textile merchant and shipping magnate Crawford Allen, donated the site to Rhode Island Hospital in memory of her father. At the time, the donation was worth $140,000.

The John Carter Brown estate on the Allen property, an elaborate, three-story brick home with carriage house, served as the hospital and dormitory for the 40 young patients, most of whom were afflicted with polio, bone

...any time spent in freeing their distorted little bodies from suffering is time well spent.

—Dr. Albert Miller

Children shown making baskets. Outdoor activity and sports for the ambulatory, such as baseball and swimming, was encouraged.

Crippled children were stretched out on platforms and rolled into the sea by nurses. The salty sea baths were only done when the water temperature reached 70 degrees.

Children in 1908 wade in the water by the hospital pavilion.
The surgical cases were under the care of DRS. FRANK E. PECKHAM, ROLAND HAMMOND, ALBERT W. ROUNDS and MURRAY DANFORTH. Physicians from the outpatient department of RIH oversaw the medical cases.

**Salutary benefits of seashore**

In 1911, the first editor of RIMJ, Dr. Roland Hammond, published an article on the treatment of bone tuberculosis in children at the Crawford Allen in the Boston Medical and Surgical Journal. He concluded that the treatment was beneficial to the children, of whom only two had to return to RIH.

In Volume 10 (1912) of The American Journal of Orthopedic Surgery, Dr. Hammond presented several case reports on children at the seashore hospital in 1910.

The first case reported on a 9-year-old boy, identified as J.F., who was run over by a wagon on Sept. 1, 1909, and sustained a compound fracture of the right tibia and fibula. Surgery was performed, but the following spring there was “considerable forward and inward bowing of the tibia with a long irregular scar over anterior surface and two discharging sinuses [with] marked dermatitis.”

The boy was sent to Crawford Allen and the sinuses closed; he gained 7 pounds, and walked without pain. A subsequent x-ray showed healthy bone and sinuses. (see Table)

Another physician of the era, Dr. Albert Miller, reported the seashore treatment alleviated the “acute pain of burrowing abscesses and of muscular spasm.” He further noted, “any time spent in freeing their distorted little bodies from suffering is time well spent.”

The hospital continued serving children for more than 50 years, and closed in the late 1950s.

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**Table.**

<table>
<thead>
<tr>
<th>Year</th>
<th>1907</th>
<th>1908</th>
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<tr>
<td>Total number treated,</td>
<td>37</td>
<td>47</td>
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<td>Number staying over sixteen weeks,</td>
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<td>Weeks of sea bathing (five days a week),</td>
<td>13</td>
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<td>15</td>
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<td>Average age of patients (years),</td>
<td>9.1</td>
<td>6.7</td>
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<tr>
<td>Average gain in weight (pounds),</td>
<td>6.8</td>
<td>5.3</td>
<td>5.1</td>
<td>5.1</td>
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<tr>
<td>Patients with sinuses,</td>
<td>15</td>
<td>14</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Total number of sinuses,</td>
<td>41</td>
<td>48</td>
<td>58</td>
<td>38</td>
</tr>
</tbody>
</table>
| Sinuses healed during season, | 12 | 16 | 18 | 2*

* Nearly all of the sinuses in three patients in the height of the disease, which explains the low percentage of healed sinuses. Also in previous years, man of the sinuses were in abdominal cases, which healed quickly, and raised the general average.
FOR SEVERE COUGHS, CAN YOU REMEMBER THESE LETTERS?

You know Robitussin®, and the “DAC” formula gives you just what you need to manage those severe coughs complicated with nasal congestion... Decongestant And Codeine!

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20th Century Signs of Infectious Times

Quarantine signs such as these were prevalent nationwide during the first half of the 20th century, warning visitors away from homes with smallpox, polio and other infectious diseases.

Image of a nurse posting a scarlet fever warning sign on a Rhode Island home in 1939. Scarlet fever and diphtheria warning signs issued by the Providence Board of Health, circa 1935.
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Ineligible, May Now Enjoy the Protection of

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Farmers, fishermen, domestic employees, professional people, small business men—are among those who may now join. The age limit is 65 years and the usual Blue Cross health statement is required. The waiting period for maternity cases will remain at 9 months.

Prospective applicants may obtain full information and enrollment blanks by applying to Blue Cross headquarters. You will help this greater Blue Cross plan to complete success by requesting and using descriptive folders for your outgoing mail and a small display cut-out in color for your waiting room.

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We are partnering with healthcare providers across the state
to establish accountable care organizations that combine innovative
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our state continues to remain a healthcare leader for the next century.

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REACHING
THE CENTURY
MARK

Requires knowledge beyond your years. Here’s to another 100.

Baystate Financial congratulates the RI Medical Journal on reaching 100 years.

Founded in 1901, Baystate Financial is one of New England’s oldest and largest financial services firms offering comprehensive, individualized financial strategies for clients.

Baystate’s broad range of services includes: financial planning, business & estate planning, and retirement & special needs planning. We also offer a variety of protection and investment products, including life, health and disability insurance & long-term care, mutual funds, annuities and IRAs.
New England Society of Disaster Medicine holds annual meeting at Brown
DAVID ORENSTEIN

The Great Storm of 1938
MARY KORR

Tianjin, China

Are you reading RIMS Notes?
Working for You
Weight + Wellness Summit
Your Voice for 200+ Years
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PUBLIC HEALTH

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New England Society of Disaster Medicine holds annual meeting at Brown
Preventing for epidemics and natural disasters
DAVID ORENSTEIN
SCIENCE NEWS OFFICER, BROWN UNIVERSITY

Dr. Selim Suner welcomed colleagues from Brown, Harvard, the University of Massachusetts and other institutions for a day of talks on topics such as Ebola, bioterror and the importance of simulations in improving preparedness. Dr. Suner, a professor of emergency medicine, surgery and engineering at Brown, is one of the group’s founders and has deployed to help in disasters such as the September 11 attacks and Hurricane Katrina. He shared his insights about what’s on the mind of the region’s disaster medicine experts and the key role academic study plays in a crisis.

What are the hot topics in disaster medicine in New England?
We’re particularly concerned about hurricanes, winter storms causing prolonged power outages, emerging infections and pandemics, active shooter incidents and terrorism. Unplanned information technology downtimes and cyber attacks are also emerging threats we are discussing.

Disasters, with their urgency and chaos, seem like an inhospitable set of conditions for careful study. What is the role of academics in disaster medicine?
While it is difficult to apply the scientific method to study disasters – the gold standard being the double-blind, randomized, placebo-controlled clinical trial – it is imperative to utilize proper processes to study disaster epidemiology and response. The U.S. spends a lot of money on disaster response recovery, less so on preparedness. We need to understand the epidemiology of illness and injury during disasters in order to prepare more effectively, and we need to know what works in terms of disaster response to allocate scarce resources more efficiently.

So far, most studies have been retrospective reviews of past disasters and response. The data in these studies are mostly low quality, and the retrospective methodology leads to biases and problems with validity. Simulation and exercises are used often to study certain aspects of response or preparedness or how specific events can be best managed. But these scenario-based mock events are never a substitute for true events.

As a group of academicians and also disaster response experts with field experience, the New England Society of Disaster Medicine has the goal of bridging the gap between academics and field response. This evolution is...
somewhat akin to emergency medical services research, which has a history slightly longer than disaster medicine.

Tell us about the society. How does its existence help you as a physician and a researcher working in Rhode Island?
The society was first formed in 2014 as a collaboration of Brown University, Harvard (Beth Israel Deaconess Medical Center) and University of Massachusetts Worcester disaster medicine programs. We expanded to include Massachusetts General Hospital this year. The goal is collaboration among the programs for education – we all have active fellowship training programs – and response. There are thoughts of future directions in terms of a research agenda and perhaps the establishment of a scientific journal.

Because the disaster medicine community is small and funding sources scarce, pooling resources is beneficial to all programs. Also, disaster research requires a strong infrastructure and collaborative efforts.

Are there lessons and studies from disaster medicine that help to inform patient treatment in more isolated emergency cases?
As clinicians, we use our experiences to guide patient care in the emergency department. Having taken care of patients in austere conditions with limited resources during disaster response operations, one gains confidence and flexibility to practice everyday emergency medical care. Also, working after specific disasters gives us experience and knowledge in taking care of medical conditions that are not frequently seen in the emergency department – from blast injuries and severe burns to crush injuries and certain infectious diseases, such as Ebola.

The Great Storm of 1938

Area hospital flooded with casualties; lights shone on in Rhode Island Hospital

MARY KORR
RIMJ MANAGING EDITOR

On September 21, 1938, in a time before hurricanes were named, the Great New England Hurricane and Tidal Wave, as many of that era later referred to it, caught New Englanders by surprise.

Also dubbed the “Long Island Express,” it barreled into the Ocean State at approximately 3 p.m. Records of The Blue Hill Observatory outside Boston document measured sustained winds of 121 miles per hour and gusts as strong as 186 miles per hour.

It was a typical day at Rhode Island Hospital, according to an October 1938 article in the Rhode Island Medical Journal written by a hospital nurse on duty at the time. Nurses in training were helping to sterilize gloves and equipment. The 3:30 p.m. shift began to arrive, scurrying in to escape the driving wind, dirt and debris flying through the air as the storm strengthened.

One observer inside the hospital watched what she thought was a flock of birds swiftly fleeing the storm. In fact, they were heavy slate shingles hurtled in formation from the staff room roof at an astounding speed. The wind strengthened and smashed the skylights over the dental clinic. The Superintendent of the hospital,
covered with rubber sheets and aprons. Ambulance sirens added to the wail of the winds as storm victims poured in. “We turned to the task of repairing torn, bruised and bleeding humanity,” the RIH nurse recalled in the RIJ article. “The bravery of the patients was astounding. Little or no anesthesia was used for the most part. Perhaps the stunning fury of the storm had dimmed the pain. The fright of what the next blast might bring may have caused patients to forget their battered, painful, broken bodies.”

Well past midnight, the victims of the storm continued to arrive. The wards overflowed, until an “annex was opened in Dr. Peter’s old apartment.” And the usual emergency patients arrived as well, with cases of tonsillitis and ruptured appendixes operated on by weary physicians.

Tidal surge and the storm’s aftermath
Reports of the storm drifted in by word of mouth as the phone and radios were silent. News arrived in the morning, when Dr. Harry C. Messinger rushed in with a two-page emergency bulletin from the Providence Journal, which reported on the tidal flood.

The storm came ashore at the time of the high tide, during the autumnal equinox, which added to the surge of water being pushed ahead by the hurricane. Seaside homes all along Narragansett Bay were submerged under 12 to 15 feet of water, and Providence was inundated with 20 feet. Union Station in downtown Providence served as a refuge and hospital for hundreds of people that night. Amidst the chaos and carnage wrought by the great storm, local newspapers reported the following day that, “Rhode Island Hospital is ablaze with lights and all departments functioning,” and had enough diesel fuel to keep its generators running for two or three days.

Police and firefighters served as initial responders. In the aftermath of the storm, 2,000 National Guardsmen and Works Progress Administration (WPA) workers were also deployed in search-and-rescue missions. For days after the hurricane, bodies washing up on the beaches and shoreline would be conveyed to temporary morgues in several towns. Embalming fluid and blood supplies were sent from unaffected neighboring cities and states into needed areas.

Throughout the state, disaster relief committees took steps to provide all physicians with anti-tetanus serum and other medicines and alert the public of tainted drinking water and other dangers. Ultimately, it is estimated anywhere from 600 to 800 people died in the great storm, most by drowning.
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TIANJIN, CHINA
Cranston resident Dan Nadeau reads the latest issue of the Rhode Island Medical Journal at The Tianjin International Center for Nanoparticles and Nanosystems (TiCNN) in Tianjin, China, a research center located at Tianjin University, in northern China.

Georgia Tech physicist Dr. Walter de Heer, second from left, and Dr. Lei Ma, a former post-doctoral researcher at Georgia Tech and Brown University, head the Center where Dan is the manager/supervisor/teacher of the machine shop.

The Tianjin Center’s research will focus on graphene electronics and cluster physics. Currently, the Center maintains relations with 11 international collaborators from the United States, Germany, Finland, France, and more.

The walled city of Tianjin was built in 1404. Today, it is a major seaport and gateway to the nation’s capital in Beijing; it has an estimated population of 15.4 million.

This photo shows men playing 象棋, Chinese chess. At right, Porcelain House is a contemporary museum of pottery and antiques.

Wherever your travels take you, be sure to check the latest edition of RIMJ on your mobile device and send us a photo: mkorr@rimed.org.
CONTRIBUTION

The Clinical Research Landscape in Rhode Island
GEORGE MAO, MD; BHARAT RAMRATNAM, MD

ABSTRACT

OBJECTIVES: To present an overview of clinical research activity and the state of medical research funding in Rhode Island.

METHODS: We utilized clinicaltrials.gov registry to profile clinical studies between 2011 to 2016. NIH RePORT and other federal databases were used to extract information on levels of federal funding. Previously published hospital financial reports were reviewed for data on hospital-specific total external research funding.

RESULTS: During 2011-2016, 1651 clinical studies were registered in clinicaltrials.gov. Nearly a third of all clinical studies were in oncology (21%) and cardiovascular diseases (10%). Alzheimer’s dementia, breast cancer, HIV, and hepatitis C accounted for nearly 17% of all clinical trials. Seventy-five percent (75%) of clinical trials in RI were conducted in hospitals affiliated with Lifespan or Care New England. Financial support for clinical trials largely came from industry (60%) with 23% being supported by the National Institutes of Health (NIH). The rest are funded by nonprofit organizations, charitable foundations, educational institutions, and unlisted concerns.

KEYWORDS: clinical studies, medical research, research funding, NIH funding

INTRODUCTION

Although Rhode Island is the smallest state and seventh to last in terms of population, medical research in Rhode Island is robust. As of 2009, Rhode Island has led the nation in per capita number of active clinical studies [Figure 1a]. Furthermore, Rhode Island ranks third among states in the union in per capita NIH funding, just behind Massachusetts and Maryland [Figure 1b]. In the period of 2011-2016, over 1600 trials have been active in the state, encompassing a broad range of medical fields. In the past year alone, federal agencies dispensed $130 million to support 353 projects [which includes both clinical studies and biomedical research]. Given this vast volume of research, this report seeks to give a detailed overview of the clinical research currently conducted in Rhode Island, as well as an overview of the current climate of medical research funding in the state.

METHODS

We chose clinical study data registered with the US clinical trial registry at clinicaltrials.gov as the source data for quantifying clinical research activity. All studies with either initiation or completion dates falling between 1/1/2011 and 9/12/2016 were selected for analysis. We utilized NIH RePORT, and other federal databases available from the Patient-Centered Outcomes Research Institute (PCORI), the Agency for Healthcare Research and Quality (AHRQ), and the Department of Defense (DoD) as the source of data on federal funding for medical research. Included in the category of medical research for purposes of funding analysis are clinical trials as well as translational and basic biomedical science research. We utilized publically accessible financial statements (2011–2015) released by Lifespan and Care New England for data on external research funding received by their respective hospitals.

Figure 1a. Top ten states by number of clinical studies per 10,000 people in the years 2011 to 2016. Data is obtained from clinicaltrials.gov registry.

Figure 1b. Top ten states by average annual per-capita NIH funding in dollar amounts between years 2011 to 2015.
CLINICAL RESEARCH ACTIVITY

Clinical trials in oncology, followed by cardiology, neurology, psychiatry, infectious diseases, gastroenterology, and pulmonology comprise the bulk of the clinical research in Rhode Island (Figures 2 and 3). The majority of clinical trials are conducted in medical centers (64%), with the remainder in private medical offices and research facilities. Approximately 60% of studies are either solely or partially industry sponsored, and 22% are federally funded (primarily via NIH), with the rest funded by a combination of different sources, which may include private foundations, nonprofit groups and other public sources (Figure 4). Most major pharmaceutical companies sponsor clinical trials in RI, with Pfizer, Roche, and Novartis (78, 66, 54 trials respectively) having the largest presence, corresponding to their size in the overall industry. Phase 3 trials are the most common studies (44%), followed by phase 2, and observational studies (Figure 5).

The majority of investigational therapies are pharmaceuticals, which is followed by behavioral interventions, biologics, medical devices, and lastly, procedures (Figure 6).

Mirroring the major causes of mortality in Rhode Island, cancer and cardiovascular diseases are the most actively researched areas, accounting for one-third of the clinical trials conducted in the state. The incidence of cancer in RI is above the national average (479 vs. 448 per 100,000 individuals), and is also the number one killer in the state (number two if all cardiovascular diseases were considered in one category). Most of these are large national multicenter trials of chemotherapy with significant cooperation/support from industry. Within oncology, the largest portion of research (~20%) is devoted to breast cancer, followed by lung cancer, hematologic cancers, and ovarian cancer (Figure 3). Compared to Rhode Island’s epidemiologic data of cancer rates, there is a relative paucity of clinical investigational

Figure 2. Clinical studies by research category.

Figure 3. Clinical studies in oncology.

Figure 4. Sources of clinical study funding by number of clinical trials.

Figure 5. Clinical study by type.
therapies in colorectal, prostate, bladder, and liver cancer, while there is a relative abundance of trials in hematologic cancers and ovarian cancer. Cardiovascular diseases, which include conditions affecting the heart and the peripheral vasculature, when taken as a whole, are the leading causes of mortality in Rhode Island, with heart disease accounting for the majority of deaths (Figure 7). Correspondingly, clinical trials in ischemic heart disease and related acute coronary syndromes make up the bulk portion of clinical cardiovascular research, followed by preventative cardiology (lifestyle changes, blood pressure and cholesterol management), arrhythmias, and peripheral arterial disease.

Outside the fields of oncology and cardiovascular disease, there are a significant number of trials devoted to dementia and hepatitis C. Alzheimer’s disease afflicts 23,000 Rhode Islanders and is the most researched singular disease entity, with 73 clinical trials investigating novel therapies as well as diagnostic/screening tools, primarily at Rhode Island Mood and Memory Institute and Butler Hospital’s Department of Memory and Aging. Clinical research in hepatitis C, particularly in the realm of antivirals (65 studies), account for a significant fraction of both gastrointestinal and infectious disease research. Similarly, trials of antivirals in HIV-1 therapy have also received special attention with 63 studies conducted over the past 5 years. Other conditions with high number of clinical trials include diabetes, depression, asthma, COPD, pain management, and substance addiction. Furthermore, research in pulmonary hypertension deserves special attention, as the number of clinical trials (n=20) is relatively high given the condition’s rarity.

**Sources of Research Funding**

While several federal agencies (DoD, AHRQ, PCORI, Veteran’s Administration, Centers for Disease Control, Food and Drug Administration) and the RI Department of Health all contribute to funding of medical research in Rhode Island, the NIH and its constituent organizations represent the lion’s share of public research funding ($132 million from NIH to ~$10 million from non-NIH government agencies in 2015). However, NIH funding has decreased from $152 million in 2011 to $132 million in 2015 (Figure 8). While NIH grants tend to support traditional laboratory, translational and clinical research, other organizations such as AHRQ and PCORI support research in measuring population healthcare outcomes. Furthermore, the VA funds all types of medical research activity from basic sciences to healthcare delivery. While the VA does not publish research expenditures by state publically, the VA budgeted $500 million nationally in medical and prosthetics research in 2015. The VA Medical Center in Providence is a designated Center of Innovation, with 7 active projects as well as possessing a dedicated research facility, the Ocean State Research Institute. Historical data from Brown University’s Alpert Medical School shows that the VA spent between $20–23 million annually on internal research.
medicine related projects between 2009 and 2013. Furthermore, the VA supports orthopedic research projects at Brown, and in 2012, jointly funded The Center for Neurorehabilitation and Neurotechnology with local area institutions.

In addition to national charities, the Rhode Island Foundation, which pools financial resources of 19 local charitable funds that actively donate to medical research, supports 10-12 grants up to $25,000. Higher educational institutions in Rhode Island such as Brown and URI contribute to research funding within the state; however, out-of-state universities such as Yale and Columbia Universities have provided funding to active in-state research as well. The majority of clinical trials, in particular chemotherapeutic trials, are funded in whole or in part by pharmaceutical firms.

**RESEARCH FUNDING LANDSCAPE**

Lifespan hospitals (RIH, Miriam, Bradley) in conjunction with Brown University, the institution for which the former serve as affiliated teaching hospitals, account for just over half of the state’s clinical research activity. Other significant centers of research activity include the Care New England hospital system (Butler, Women & Infants, Memorial Hospital of RI, Kent Hospital), CharterCARE Health Partners (Roger Williams and Fatima Hospital), and the Providence VA Medical Center. In the past five years, while overall federal support for medical research in RI has declined by 15%, research funding for Brown University has remained fairly consistent at around $50-$60 million per year annually. Furthermore, while Lifespan hospitals have seen cuts in federal research support, the annual external research funding has remained stable, between $70—$80 million, with the majority (~$50 million) going to Rhode Island Hospital. This indicates an increase from private sources of funding at the same time that public funding has decreased.

For Lifespan, in the period between 2011 and 2015, federal support for research funding has declined from $49 million annually to $37 million. In the same period, federal research funding for Care New England hospitals have fluctuated from a high of $19 million in 2012 to $14 million in 2015. The vast majority of federal funding came from NIH grants, and the rest from DoD, CDC, and AHRQ. Between 2011 and 2016, there were 550 ongoing clinical trials, with 45% of trials funded by NIH, and a third of trials funded by industry, with significant overlap between the two. However, a majority of the clinical studies are neither supported by public funds nor the for-profit private sector, but instead come from grants by nonprofit organizations and educational institutions. The second largest contributor to clinical research in the state, Care New England, had an annual total research funding of $23 million in 2015, and $25 million in 2014. Between 2011 to 2016, Care New England hospitals were the site of 349 clinical trials, with 60% of trials funded by the NIH and 17% funded by industry.
CONCLUSION

Rhode Island remains a robust contributor to medical research, and the research landscape is dominated by oncology, cardiovascular, neuropsychiatric, and infectious diseases. Brown University and affiliated hospitals (Lifespan and Care New England healthcare systems) account for the majority of research activity and funding in the state. While overall research funding at Brown and Lifespan hospitals has remained stable, the proportion of federal funding for medical research has declined, with the gap made up for by private sources of funding as well as the hospitals themselves. This therefore highlights the need for investigators to have access to outside sources of funding and initiatives that promote increased inter-institutional collaboration if medical research is to remain unaffected by the current federal budgets cuts.

References


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Health-Needs Assessment for West African Immigrants in Greater Providence, RI

AKOSUA BOADIWAA ADU-BOAHENE, MPH; MICHAEL BARTON LAWS, PhD, MA; KWAME DAPAHAH-AFRIYIE, MD, MBA

ABSTRACT
African immigrants in the United States may experience barriers to health-care access and effectiveness. This mixed-methods study used paper-based surveys of people (n=101) in the target population from Nigeria, Ghana, and Liberia, recruited through convenience and snowball sampling. Semi-structured interviews were conducted with 3 clergy members who pastor churches with large Nigerian, Ghanaian, and Liberian populations, respectively; and five physicians and a clinical pharmacist who serve African immigrants.

RESULTS: Length of stay in the United States was associated with the health status of refugee children. Undocumented immigration status was associated with lack of health insurance. Cardiovascular diseases, uterine fibroids and stress-related disorders were the most prevalent reported conditions. Regardless of English fluency, many immigrants are unfamiliar with medical terminology.

CONCLUSION: African immigrants in the state of Rhode Island need more health education and resources to navigate the US health-care system.

KEYWORDS: African immigrants, refugees, cultural competency, cardiovascular diseases, health insurance

INTRODUCTION
There are approximately 42 million immigrants in the United States, of whom about 1.5 million are estimated to come from Sub-Saharan Africa (SSA). There is limited information on the health status and demographics of African immigrants in the United States and in Rhode Island. They are often included with the African-American population. Much of the literature has focused on issues related to infectious diseases such as HIV and tuberculosis.

Though African immigrants are reportedly healthier than their African-American counterparts, their health status tends to approach that of the latter with longer duration in America, due to lifestyle changes. Health reforms in America have often had limited benefits for immigrants, in general, and particularly, the undocumented.

Immigrants are generally prone to psychological health problems due to both pre-migration risk factors such as previous traumatic experiences and post-migration factors such as culture shock, and low socioeconomic status. Refugees, however, have a much higher risk of mental health issues during their resettlement due to their past experience, and, compared to the general public, they show an elevated risk of psychological ill health. However, we know little about the mental health of African immigrants. It has also been reported that, although African immigrants were not as obese as their African American counterparts, they had worse blood glucose levels and were more hypertensive. Immigrants have often been observed to be healthier than their socioeconomic status would predict, a phenomenon dubbed the healthy immigrant effect. This effect has been attributed to relatively healthier lifestyles of recent immigrants before migration, among other reasons.

Based on what little is known, it seemed likely that the health of African immigrants in Rhode Island is related to their duration of stay in the United States. We also expected that they face barriers to health-care access in the United States related to immigration status and socioeconomic status. Results from this needs assessment are intended to inform public health initiatives for African immigrants in Rhode Island and in the United States more broadly. There are an estimated 13,100 immigrants from sub-Saharan Africa in Providence County. While immigrants come from all African countries, there is a substantial population in Providence County from the Anglophone countries of West Africa. Indeed, immigrants from Ghana, Liberia and Nigeria comprise 31% of all immigrants from sub-Saharan Africa to the U.S. This work focuses on that sub-population.

METHODS
From August 2015 to February 2016, the first author conducted a paper-based survey of people in the study population, and semi-structured interviews with key informants. For the sake of practicality, this mixed-methods approach involved convenience and snowball sampling where research participants assist in recruiting other research participants from their acquaintances. This study was approved by the Brown University Institutional Review Board.

Quantitative
The target populations are predominantly Christian and attend churches which largely serve immigrants from their specific countries. Consequently, churches in Pawtucket
were principal sites of recruitment. (Table 1).

The survey tool included questions about respondents’ background and country of origin, their health status before and after immigrating to the United States, how they obtained preventive care, their healthcare experiences with their personal doctors and their demographic information, including immigration status. Survey participants were offered an incentive of $3.00 for participation.

For statistical analysis, the unweighted frequencies of the exposure variable or race were presented. For each demographic or confounding variable, bivariate analysis was used to examine covariates by race and the unweighted frequencies and weighted column percentages were also presented. All statistical analyses were performed by STATA [StataCorp. 2013 [Stata Statistical Software: Release 13. College Station, TX: StataCorp LP]. Linear regression was employed in the analyses in order to test the possible association between the variables while controlling for other variables and potential confounders.

### Qualitative

In semi-structured interviews, clergy provided information about the demographics, diseases and other health information of their congregation. We recruited five physicians through networking, including an infectious disease specialist, an obstetrician and gynecologist, a pediatrician, a family medicine specialist, a trauma surgeon, and a clinical pharmacist, who gave information about challenges faced by their African immigrant patients in accessing health care, and their typical health issues.

### Quantitative Results

The total number of completed surveys filled was N=101. The response rate was 85.60%. Seventeen refused to participate due to privacy concerns and fear of stigmatization, particularly for the undocumented. The proportion of the West African immigrant population which is undocumented may therefore be higher than is reflected in the sample. Seven respondents were from other African countries not targeted in this study. The sample for analyses based on country of origin was n=94, but we retained the full sample for some descriptive purposes. All were fluent in English.

Table 1 shows the distribution of country of origin and health insurance status with demographic and socioeconomic information. The population on the whole is relatively young, and well educated. Overall, 77% reported having health insurance. Nigerians respondents were the least likely to be insured (63%).

About half of Ghanaians and Nigerians said their principal reason for coming to the U.S. was for better education; however Liberians were more likely to have come for other reasons, including seeking asylum, and to join family. (Liberia endured a civil war ending in 2003.)

Table 2 shows the distribution of reported present chronic diseases. High blood pressure and joint/back pain were the most reported diseases with percentages of 12% and 13% respectively.

Adjusting for education, Nigerians had 0.15 the odds of having health insurance compared to Ghanaians and Liberians had 0.81 the odds of having health insurance compared to Ghanaians. Although most respondents did have health insurance, many reported not receiving standard preventive care. Of those with insurance, 69% reported having had their blood pressure checked in the last year. Forty-nine

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percent reported cholesterol screening, and 54% reported having had a dental exam. People without insurance had much lower rates of receiving preventive care, e.g., only 1 out of 30 respondents without insurance reported having had cholesterol screening or a dental exam. While 2/3 of respondents said their health status was better since coming to the U.S., half reported that their stress level was worse. Half of respondents reported having no chronic diseases. Joint or back pain was the most prevalent reported condition (13%) followed by high blood pressure (12%) and diabetes (10%).

**QUALITATIVE FINDINGS**

Clergy and the six healthcare providers broadly agreed on some key issues. Immigrants from West Africa tend to be unfamiliar with medical terminology and concepts. As one pastor said, “There are some terminologies which never crossed our vocabulary.” “We didn’t hear about names like cholesterol until we came to this country.” Physicians concurred. One stated that it may take several follow-up visits to make sure people adequately understand their health and health care and advised that physicians not assume people are knowingly non-adherent. Informants also concurred that African immigrants tend to be slow to seek health care and may present with relatively advanced problems. This was seen in part as a function of unfamiliarity with preventive care, and of concern about cost. However, physicians and clergy also perceived African immigrants as stoical, with a high threshold for pain. Physicians and clergy also felt that African immigrants are less engaged in their health care than non-immigrants, reluctant to ask questions or to be assertive about their needs.

Nevertheless, physicians interviewed perceived their African patients as generally healthier than their U.S. born counterparts. The pediatrician, however, said that anxiety and psychosomatic complaints are prevalent among the refugee families she sees. Both clergy and six healthcare providers agree that joint and back pain from working long hours are prevalent, which is consistent with the survey data. Also consistent with survey data, health-care providers perceived a high prevalence of obesity and cardiovascular risk.

Some physicians noted other issues of cultural competency, particularly the interpretation of American body language, and gender role norms. All three clergy interviewed mentioned that the power of faith had healed members of their congregation of cancer and other ailments. Nevertheless, they believed Western medicine is part of the Lord’s plan to heal. Said one, “When somebody’s faith has not risen to the level of believing in spiritual healing, then limited access to the necessary health care, becomes a great concern.”

**DISCUSSION**

This study is limited due to the relatively small convenience sample. It is encouraging, however, that the qualitative and quantitative data are consistent on points they both address. The findings support our belief in the importance of outreach to the African immigrant community to raise health literacy, encourage people to seek primary and preventive care, and to be more engaged and assertive in their interactions with health care providers.

**References**


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Disclaimer
The views expressed herein are those of the authors and do not necessarily reflect the views of the Brown University School of Public Health.

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Medical students help bridge the gap in sexual health education among middle school youth

NAOMI ADJEI, MS; MICHAEL YACOVELLI; DOROTHY LIU; KUNAL SINDHU; MARY ROBERTS, MS; SUSANNA MAGEE, MD, MPH

ABSTRACT

BACKGROUND: School-based programs are important in addressing risky teenage sexual behavior. We implemented a sex education program using trained medical student volunteers.

METHODS: Medical students (n=30) implemented a seven-session curriculum, designed by medical students and faculty, to 7th and 8th grade students (n=310) at a local school. Middle school students completed pre- and post-assessments. Teachers and medical students completed questionnaires relating their perceptions of students’ attitudes and understanding of sexual health.

RESULTS: Students completing the curriculum scored 5% higher on post- versus pre-assessment (84% vs 78.7%, p<0.001). Statistically significant gains were noted in knowledge of reproductive system anatomy, community resources, and sexual decision making. Sixty percent of middle school teachers compared to only 16.7% of medical student volunteers reported discomfort teaching sexual health.

DISCUSSION: Sexual education delivered by trained medical student volunteers may improve middle schoolers’ understanding of sexual health.

KEYWORDS: sexual health, teen pregnancy, sexually transmitted illnesses, middle school, medical students

INTRODUCTION

Teens in the United States are nearly twice as likely to give birth as those in Canada, three times more likely than those in Spain, and 13 times more likely than those in Switzerland. Each year, teenagers account for about one-fifth of all unintended pregnancies. In 2013, there were 26.5 births per 1000 women aged 15–19 in the U.S., indicating a 10% drop in birth rate to teens from 2012, but the overall decrease in births masks regional differences. Teen birth rates in Rhode Island (RI) are significantly greater than in neighboring Massachusetts, Connecticut and New Hampshire, which have the three lowest teen birth rates in the U.S. RI’s most affected city, Central Falls, has a teenage birth rate that is nearly triple the national average.
and at least two medical student volunteers per classroom. The middle schoolers in each classroom were further separated by gender into smaller groups of 4–6 students led by a medical student of the same gender. English Language Learner (ELL) classrooms were taught by Spanish-speaking medical student volunteers.

The middle school’s administrators sent an explanation of the program (in English and Spanish) and ‘opt-out’ slips to parents of students to inform them about the sexual education program. Students (n=3) who returned a signed copy of the ‘opt-out’ form were not eligible to participate in the sessions. Parental consent was implied when the parent/guardian[s] did not return the opt-out form by the set deadline.

Middle schoolers completed a pre- and post-assessment to evaluate their baseline knowledge about sexual health and their knowledge acquisition during the program. The teachers and medical student volunteers related their perceptions of middle schoolers’ attitudes, understanding, and practice of sex, as well as their feelings of preparedness in teaching various sexual health topics (e.g. body image, healthy relationships, making healthy decisions, contraception, abstinence, pregnancy, STIs, sexual violence, and sexual identity) by choosing from 3 options which included “not prepared at all,” “somewhat prepared,” and “very prepared.” The institutional review board at Memorial Hospital of RI approved the study as exempt.

Descriptive statistics were generated to characterize the sample of middle schoolers, teachers and medical student volunteers. The concepts evaluated by the middle schoolers’ assessments were categorized into nine domains: Pregnancy Prevention, Reproductive System Anatomy, Puberty, General Knowledge of STIs, STI Prevention, Community Resources, Safe Sex Practices, Sexual Assault, and Sex Decision Making. Categorical variables were created for each of the domains based upon a 60% correct cut-off point, as the passing score for assignments at the middle school level is set at 60% in all subjects. Due to student absences, more students completed the pre-assessment than the post-assessment. We presented a comparison of the baseline demographic and knowledge domains for those who only completed the pre-assessment versus those who completed both pre- and post-assessments using chi-square analysis to examine differences in these two groups (Table 2). Matched pre- and post-assessment data were compared using chi-square analysis to examine change in knowledge domains (Table 3). A paired t-test was also used to compare the continuous total knowledge score pre- and post-assessment. IBM SPSS version 20 was used for all analyses.

RESULTS

Demographic characteristics of the students, teachers, and medical student volunteers who participated in the program appear in Table 1. The survey response rate yielded 100% for teachers (35/35) and medical students (30/30),
62.9% for middle schoolers completing only the pre-assessment (195/310), and 30.0% for those completing both the pre- and post-assessment (94/310). Seventy-seven percent (n=27) of teachers who participated in the program were female and 40.0% (n=14) were between 30 to 39 years old. Teachers most frequently chose “Math/Art” (25.7%, n=9) and “Other/All subjects” (40.0%, n=14) as subjects they taught. Participating teachers exhibited a wide range of teaching experience, with a majority at 42.9% (n=15) reporting 11–20 years of teaching experience. Medical students were 63.3% female (n=19) and were distributed evenly among first- and second-year students at 53.3% (n=16) and 43.3% (n=13), respectively. Middle schoolers enrolled in the Sex Ed program were 45.5% male (n=140) and 47.7% female (n=148), 81.6% (n=253) between 11 and 12 years old, and 62.6% (n=194) self-identified as Hispanic.

Student performance results on pre- and post-assessments [17 questions total] appear in Table 3. Students’ overall performance improved after completion of the program. Students scored 5% higher on the post-assessment than on their matched pre-assessment [i.e. one additional question answered correctly], which was statistically significant (84% vs 78.7%, abs diff = 5.3%, p<0.001). Assessment questions were divided into subgroups (domains) based on various themes in sexual health education. The improvement reaches statistical significance for knowledge of reproductive anatomy, STIs, and safe sex practices.

The demographics for teachers and medical students appear in Table 1. Survey results showed that most teachers (54.3%) and medical students (63.3%) believed that up to a

| Table 1. Characteristics of Key groups involved in Sex Ed by Brown Med Program |
|---------------------------------|---------|---------|
| **Variable**                     | **n (%)** |
| **MIDDLE SCHOOL TEACHERS (n=35)** |         |
| Gender                          |         |
| Male                            | 5 (14.3) |
| Female                          | 27 (77.1) |
| Refused                         | 3 (8.6) |
| Age                             |         |
| 20-29 years                     | 7 (20.0) |
| 30-39 years                     | 14 (40.0) |
| 40-49 years                     | 6 (17.1) |
| 50+ years                       | 4 (11.4) |
| Refused                         | 4 (11.4) |
| Grades taught                   |         |
| Grades 5-6                      | 8 (22.9) |
| Grades 7-8                      | 16 (45.7) |
| Grades 5-8                      | 8 (22.9) |
| Refused                         | 3 (8.6) |
| Subjects taught                 |         |
| Health, PE, Science             | 5 (14.3) |
| Math, Arts                      | 9 (25.7) |
| Humanities, History, Foreign Language | 3 (8.6) |
| Other/All                       | 14 (40.0) |
| Refused                         | 4 (11.4) |
| Length of time teaching         |         |
| 1 year or less                  | 5 (14.3) |
| 2-10 years                      | 9 (25.7) |
| 11-20 years                     | 15 (42.9) |
| more than 20 years              | 5 (14.3) |
| Refused                         | 1 (2.9) |
| **MEDICAL STUDENT VOLUNTEERS (n=30)** |         |
| Gender                          |         |
| Male                            | 11 (36.7) |
| Female                          | 19 (63.3) |
| Year in medical school          |         |
| First                           | 16 (53.3) |
| Second                          | 13 (43.3) |
| Refused                         | 1 (3.3) |
| **MIDDLE SCHOOL STUDENTS (n=310)** |         |
| Gender                          |         |
| Male                            | 140 (45.2) |
| Female                          | 148 (47.7) |
| Refused                         | 22 (7.1) |
| Age                             |         |
| 11 years old                    | 101 (32.6) |
| 12 years old                    | 152 (49.0) |
| 13 years or older               | 30 (9.6) |
| Refused                         | 27 (8.7) |
| Race/Ethnicity                  |         |
| Hispanic                        | 194 (62.6) |
| Non-Hispanic Black              | 36 (11.6) |
| Non-Hispanic White              | 27 (8.7) |
| Non-Hispanic Other              | 15 (4.9) |
| Unknown                         | 38 (12.3) |
| Academic Grade                  |         |
| Grade 7                         | 143 (46.1) |
| Grade 8                         | 167 (53.9) |
quarter of their students are sexually active, and only one quarter of those sexually active students practice safe sex. Both groups also reported that sexual health resources for students are severely limited, with 60.0% of teachers and 70.0% of medical students citing that they believe that less than 25% of students have access to accurate sexual health information outside of the school setting. Only 60% of teachers discussed sexual health in their classroom during the 2013–2014 school year with 31.4% discussing it only 1–2 times. A total of 37.1% of teachers reported never discussing sexual health at all. Approximately half of teachers (51.4%) reported that zero students initiated a discussion about sexual health, while the other half (48.6%) reported that they had student-initiated talks about sexual health with at least one or more of their students.

Among teacher respondents, 60% did not feel prepared to discuss any of the mentioned topics in the survey and 14.3% cited feeling prepared to teach students in all delineated sexual health topics. Teachers expressed feeling that they were "very prepared" in discussing topics related to body image (34.3%) and healthy relationships (28.6%), and they reported feeling "not at all prepared" in facilitating discussions about good sexual decision making (31.4%), contraceptive use (34.3%), abortion (28.3%), pregnancy (25.7%), STIs (25.7%), sexual violence (40.0%), and sexual identity (34.3%). Medical students reported feeling "very prepared" in discussing topics in body image (33.3%), healthy relationships (43.3%), contraceptive use (66.7%), abortion (53.3%), pregnancy (46.7%), and STIs (43.3%), and reported feeling "not at all prepared" in teaching topics in sexual violence (26.7%) and sexual identity (23.3%).

**DISCUSSION**

Local education officials are tasked with delivery of sex education in the U.S. since no federal laws require sex education in schools; thus, standards and curriculums differ widely across the country.18 RI is one of 24 states that require sexual health education to be provided to students.19 The state requires that public schools deliver instruction that is age and culturally appropriate, medically accurate, and covers STIs.20 At the school our program was based in, sex education was typically taught by the physical education teacher to about 40 middle schoolers at a time. Our program, which provided comprehensive sexual health education, was enthusiastically supported by both the Central Falls School District and the RI Department of Education.

Our results suggest that sexual health education in schools may be improved through the use of trained medical student volunteers. Sixty percent of the middle school teachers in our survey, who are charged with delivering instruction in the current model of sexual health education, reported not being prepared to discuss any of the topics in our curriculum, as compared to 16.7% of our medical student volunteers. With their specialized training in anatomy, experience

### Table 2a. Comparison of Students Completing Both Pre- and Post-Assessment to Those Completing Only Pre-Assessment: Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Only Pre Completed</th>
<th>Both Pre/Post Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>107 (54.9)</td>
<td>33 (35.5)</td>
</tr>
<tr>
<td>Female</td>
<td>88 (45.1)</td>
<td>60 (64.5)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 years old</td>
<td>74 (38.9)</td>
<td>27 (29.0)</td>
</tr>
<tr>
<td>12 years old</td>
<td>97 (51.1)</td>
<td>55 (59.1)</td>
</tr>
<tr>
<td>13 years or older</td>
<td>19 (10.0)</td>
<td>11 (11.8)</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>124 (68.1)</td>
<td>70 (77.8)</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>26 (14.3)</td>
<td>10 (11.1)</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>22 (12.1)</td>
<td>5 (5.6)</td>
</tr>
<tr>
<td>Non-Hispanic Other</td>
<td>10 (5.5)</td>
<td>5 (5.5)</td>
</tr>
<tr>
<td>Academic Grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 7</td>
<td>92 (42.6)</td>
<td>51 (54.3)</td>
</tr>
<tr>
<td>Grade 8</td>
<td>124 (57.4)</td>
<td>43 (45.7)</td>
</tr>
</tbody>
</table>

Due to student absences, more students completed the pre-assessment than the post-assessment. We presented a comparison of the baseline demographic and knowledge domains for those who only completed the pre-assessment versus those who completed both pre- and post-assessments using chi-square analysis to examine differences in these two groups.

### Table 2b. Comparison of Students Completing Both Pre- and Post-Assessment to Those Completing Only Pre-Assessment: Baseline Knowledge for Sex Education Core Domains (achievement of satisfactory score*)

<table>
<thead>
<tr>
<th>Core Domains</th>
<th>Only Pre Completed</th>
<th>Both Pre/Post Completed</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy prevention</td>
<td>192 (88.9)</td>
<td>85 (90.4)</td>
<td>0.69</td>
</tr>
<tr>
<td>Reproductive system/anatomy</td>
<td>140 (64.8)</td>
<td>76 (80.9)</td>
<td>0.01</td>
</tr>
<tr>
<td>Puberty</td>
<td>43 (19.9)</td>
<td>21 (22.3)</td>
<td>0.63</td>
</tr>
<tr>
<td>General knowledge of STIs</td>
<td>60 (27.8)</td>
<td>27 (28.7)</td>
<td>0.87</td>
</tr>
<tr>
<td>STI prevention</td>
<td>155 (71.8)</td>
<td>77 (81.9)</td>
<td>0.06</td>
</tr>
<tr>
<td>Community resources</td>
<td>183 (84.7)</td>
<td>89 (94.7)</td>
<td>0.01</td>
</tr>
<tr>
<td>Safe sex practices</td>
<td>160 (74.1)</td>
<td>76 (80.9)</td>
<td>0.20</td>
</tr>
<tr>
<td>Sexual assault</td>
<td>105 (48.6)</td>
<td>52 (55.3)</td>
<td>0.28</td>
</tr>
<tr>
<td>Sex decision making</td>
<td>128 (59.3)</td>
<td>68 (72.3)</td>
<td>0.03</td>
</tr>
<tr>
<td>Total Knowledge Percentage</td>
<td>130 (60.2)</td>
<td>74 (78.7)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

*Categorical variables were created for each one of the domains based upon a 60% correct cut-off point, as the passing score for assignments at the middle school level is set at 60% in all subjects.
in discussing difficult issues in the clinical setting, and comfort teaching a variety of sexual health topics, trained medical student volunteers may be ideally suited to fill the gaps in the current model of sexual health education. Of note, however, it must be emphasized that while we believe that there are reasons to strongly favor the use of trained medical student volunteers in the delivery of sexual health instruction, we did not compare their efficacy with other trained volunteers and thus cannot determine their relative effectiveness.

While we are encouraged by our program, this particular study was limited. Our results achieved statistical significance, but our program’s true efficacy will not be known for many years as its primary objective is to reduce the teenage pregnancy rate of the students involved in the program. Given the fact that matched data on pre- and post-assessment only existed for 30% of students, it is difficult to generalize these results to all students participating in the program. The 5% increase in total knowledge indicates the potential for comprehensive sex education programs to improve participants’ knowledge should the limitations outlined be addressed. Although we were fortunate to have a steady supply of medical student volunteers, it is unclear if such a group can be recruited in other areas of the country. More data will be necessary before recommending development of similar programs in other districts.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Overall (n=94)</th>
<th>7th Grade (n=51)</th>
<th>8th Grade (n=43)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre %</td>
<td>Post %</td>
<td>Change</td>
</tr>
<tr>
<td>Pregnancy prevention</td>
<td>90.4</td>
<td>97.9</td>
<td>+7.5</td>
</tr>
<tr>
<td>Reproductive system/anatomy</td>
<td>80.9</td>
<td>77.7</td>
<td>-3.2*</td>
</tr>
<tr>
<td>Puberty</td>
<td>22.6</td>
<td>36.6</td>
<td>+14.0</td>
</tr>
<tr>
<td>General knowledge of STIs</td>
<td>28.7</td>
<td>45.7</td>
<td>+17.0</td>
</tr>
<tr>
<td>STI prevention</td>
<td>81.9</td>
<td>83.0</td>
<td>+1.1*</td>
</tr>
<tr>
<td>Community resources</td>
<td>94.7</td>
<td>94.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Safe sex practices</td>
<td>80.9</td>
<td>83.0</td>
<td>+2.1*</td>
</tr>
<tr>
<td>Sexual assault</td>
<td>55.3</td>
<td>66.0</td>
<td>+10.7*</td>
</tr>
<tr>
<td>Sex decision making</td>
<td>72.3</td>
<td>77.7</td>
<td>+5.4</td>
</tr>
<tr>
<td>Total Knowledge Percentage</td>
<td>78.7</td>
<td>84.0</td>
<td>+5.3*</td>
</tr>
</tbody>
</table>

* p<0.01

MICHAEL GOSCIMINSKI, MT, MPH; UTPALA BANDY, MD, MPH; KAREN LUTHER, RN, MPH

BACKGROUND
Invasive pneumococcal disease (IPD) occurs when a normally sterile site, such as cerebrospinal fluid (CSF) or blood, becomes infected with Streptococcus pneumoniae. Children < 2 years of age, individuals with certain health conditions or immunosuppression, and those 65 years of age or older are at higher risk for becoming infected. Prior to 2000, S. pneumoniae was a leading cause of morbidity and mortality in the United States, leading to approximately 3,000 cases of meningitis and 50,000 cases of bacteremia.1 In children <5 years of age, it caused approximately 17,000 cases of IPD, including 700 cases of meningitis and 200 deaths.2 The CDC estimated that in 1998, 35% of isolates from IPD cases were resistant to at least one antibiotic and multidrug resistance was growing.3

PCV7, a pneumococcal conjugate vaccine containing seven serotypes of S. pneumoniae responsible for 85% of pneumococcal cases in children4 and 78% of the penicillin non-susceptible strains5 at the time, was licensed for use in children in the United States in 2000. In 2001, one year after the utilization of PCV7 began, a 69% decrease in the rate of IPD in children < 2 years of age was observed nationally as were decreases in the rates of IPD in unvaccinated adults.5 Antibiotic resistance to S. pneumoniae followed a similar trend. After the incidence of penicillin non-susceptible cases peaked in 1999, an 87% decrease in the incidence of penicillin non-susceptibility due to vaccine serotypes was observed in 2004.6 With the decreased incidence of serotypes covered by PCV7, a number of replacement serotypes emerged as the cause of IPD. In 2010, PCV13 was licensed for use in the United States to combat the increase in replacement serotypes.

METHODS
IPD cases reported from 1997 through June 30, 2016 were analyzed using Microsoft Excel 2013. Annual case counts and age distribution were calculated for 1997–2015 and estimated for 2016. An analysis of the annual distribution of sex, underlying medical conditions, hospitalization, illness outcomes and primary site of disease was performed for 2011–2015. The following are some considerations when reviewing the results: cases can have more than one underlying condition documented and survival is limited to information contained within the hospital medical record. Since 2014, isolates of S. pneumoniae from children 5 years of age or younger with IPD have been submitted to the Wisconsin State Health Laboratory for serotype identification.

An analysis of antibiotic susceptibility tests (AST) received for IPD cases reported from 2011–2015 was performed. For all antibiotics, the minimum inhibitory concentration (MIC) results were used for antibiotic susceptibility classification using the 2016 Clinical and Laboratory Standard Institute (CLSI) antibiotic susceptibility breakpoints for S. pneumoniae and CLSI guidance for the creation of antibiograms was utilized.

RESULTS
Rhode Island saw a dramatic decrease in cases of IPD shortly after the introduction of PCV7. By 2001, there was a 73% decrease in cases in children < 5 years of age and a 40% decrease overall when compared to 1998. Annual case

Figure 1. Age Distribution of Cases of Invasive Pneumococcal Disease, Rhode Island, 1997–2016*

* 2016 case count is estimated
counts continued to decline slowly through 2009, largely driven by a 57% decrease in cases in adults 65 years of age or older over that time span. The same could not be said for children < 5 years of age. After recording an average of 8 cases in children < 5 years of age from 2001–2002, the annual number of cases in this age group gradually increased until a peak of 18 cases was reached in 2008. In 2010, the same year PCV13 was licensed for use in children, an overall 24% increase in cases was observed when compared to the year prior. Declines in annual case counts were again observed in subsequent years. In 2015, only 62 cases of iPD were reported, representing a 71% decrease in iPD cases since 1998. The three cases reported in children < 5 years of age in 2015 represents a 91% decrease from 1998. (See Figure 1.)

From 2011–2015, 66% of cases were bacteremia with pneumonia, followed by bacteremia without focus (27%) and meningitis (6%). Eighty percent of iPD cases had at least one documented underlying medical condition prior to their onset of illness and the vast majority of cases were hospitalized (96%) for an average of 8.2 days and 11% of cases died. (See Table 1.)

From December 1, 2014–June 30, 2016, serotyping was performed on nine isolates collected from children 5 years of age or younger. Six of the isolates were identified as serotypes covered by PCV13. Those serotypes included 19A (4 isolates), 3 (1 isolate) and 4 (1 isolate). The remaining three isolates were identified as non-vaccine serotypes (15 B/C, 17F and 35A/35C/42). Of those children with iPD caused by serotypes covered by PCV13, three were fully vaccinated, two were partially vaccinated (both had received initial doses of PCV7 followed by PCV13) and one had not received any PCV13 immunizations.

The analysis of reported ASTs did not reveal the development of any trends in antibiotic resistance from 2011–2015. Over the five-year period, full resistance to erythromycin (22.6%, MIC ≥ 1 µg per milliliter), penicillin at the meningitis breakpoint (21.8%, MIC ≥ 0.12 µg per milliliter) and tetracycline (12.0%, ≥ 4 µg per milliliter) were most common. All isolates were susceptible to vancomycin. (See Table 2.)

Although from 2011–2015, 22% of isolates were resistant to penicillin at MIC ≥ 0.12 µg per milliliter, this was slightly lower than a CDC estimate of penicillin resistance at the same breakpoint in 1998 (24%). Over the five years analyzed, resistance to penicillin was much lower (3%) at MIC ≥ 2.0 µg per milliliter than a 1998 CDC estimate (10%).3

**DISCUSSION**

Rhode Island has traditionally had a high rate of PCV coverage in children 19–35 months of age.7 Rhode Island has met the Healthy People 2020 target (90% of children aged 19–35 months receiving at least 4 doses of PCV) in three of the past five years since 2011. Pneumococcal vaccination coverage is also high in adults 65 years of age or older. The Behavioral Risk Factor Surveillance System (BRFSS) data from 2004–2015 consistently demonstrates that at least 70% of non-institutionalized adults 65 years of age or older are vaccinated.4 (See Figure 2.) High immunization rates in children and older adults sustained over an extended period of time in Rhode Island have helped to accelerate the decline in annual iPD case counts.
The dramatic change in the burden of disease and decrease in antibiotic resistance is a public health success story attributable to an effective vaccine and a very successful immunization program. Early studies of PCV7 showed that it produced an immunogenic response in children < 2 years of age and its introduction led to a decrease in IPD not only through the development of active immunity in those children vaccinated, but also through the reduced transmission of serotypes covered by the vaccine. PCV7 had a significant effect on antibiotic resistance by virtually eliminating a number of serotypes responsible for it in the 1990s. Continued support for immunization programs and vaccine preventable disease surveillance systems in the future will help ensure that IPD continues to decline in individuals of all ages.

References

Acknowledgment
We would like to thank Carolyn Carini for her assistance in preparing reported antibiotic susceptibility test results for analysis.

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Karen Luther, RN, MPH, is a Community Health Nurse Coordinator in the Division of Preparedness, Response, Infectious Disease and Emergency Medical Services at the Rhode Island Department of Health.

Table 2. Streptococcus pneumoniae Antibiotic Susceptibility Testing Results, Rhode Island, 2011–2015

<table>
<thead>
<tr>
<th>Percent Susceptible</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>5-Year Total</th>
<th>Number of Cases with Susceptibility Result Received for 5-Year Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-meningitis</td>
<td>96.9</td>
<td>92.0</td>
<td>100</td>
<td>98.4</td>
<td>100</td>
<td>97.5</td>
<td>275</td>
</tr>
<tr>
<td>Meningitis</td>
<td>82.8</td>
<td>68.0</td>
<td>78.4</td>
<td>82.0</td>
<td>77.6</td>
<td>78.2</td>
<td></td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-meningitis</td>
<td>97.2</td>
<td>98.2</td>
<td>100</td>
<td>97.9</td>
<td>98.7</td>
<td>96.4</td>
<td>303</td>
</tr>
<tr>
<td>Meningitis</td>
<td>95.8</td>
<td>94.6</td>
<td>96.7</td>
<td>97.1</td>
<td>97.9</td>
<td>96.4</td>
<td></td>
</tr>
<tr>
<td>Cefotaxime</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-meningitis</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>95.3</td>
<td>86</td>
</tr>
<tr>
<td>Meningitis</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>94.5</td>
<td>109</td>
</tr>
<tr>
<td>Vancomycin</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>94.5</td>
<td>85</td>
</tr>
<tr>
<td>Cefepime</td>
<td>-</td>
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<td>-</td>
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Figure 2. Pneumococcal Immunization Rates*, Rhode Island, 2002–2015

Some things have not.

Since 1988, physicians have trusted us to meet their professional and personal insurance needs. Working with multiple insurers allows us to offer choice, competitive rates, and the benefit of one-stop shopping. Call us.

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RIMS NOTES is published electronically on alternate Fridays.

Contact Sarah if you’ve missed an issue, sstevens@rimed.org.
The Rhode Island Medical Society now endorses Coverys.

Coverys, the leading medical liability insurer in Rhode Island, has joined forces with RIMS to target new levels of patient safety and physician security while maintaining competitive rates. Call to learn how our alliance means a bright new day for your practice.

401-331-3207
Working for You: RIMS advocacy activities

December 13, Tuesday
RI Medical Group Managers meeting regarding legislation and health care
RI Health Centers Association/Neighborhood Health Plan “Addiction Treatment in Primary Care,” RIMS President Sarah Fessler, MD, presenting
Conference call with Executive Office of Health and Human Services (EOHHS), Behavioral Healthcare, Developmental Disabilities and Hospitals (BHDDH), and Department of Health (DOH) regarding Opioid Prescriber Toolkit
RI Medical Political Action Committee Board Meeting: Michael A. Silver, MD, Chair
Public Laws Committee Meeting: Michael E. Migliori, MD, Chair

December 14, Wednesday
Board of Medical Licensure and Discipline Governor’s Opioid Task Force
Membership Committee meeting: Co-chairs Elaine C. Jones, MD, and Diane R. Siedlecki, MD

December 15, Thursday
RI Medical Journal meeting: Managing Editor Mary Korr, Designer Marianne Migliori, RIMS staff
Tobacco Free RI Coalition pre-session legislative meeting

December 16, Friday
AMA Conference Call regarding federal update

December 19, Monday
Weight & Wellness Summit Planning Committee

December 21, Wednesday
Primary Care Physician Advisory Committee, Department of Health
Health Advocacy and Equity Commission meeting

On December 1, RIMS held its annual CPT Seminar, presented by Peter A. Hollmann, MD.

December 1, Thursday
“Paint and Wine” Membership Event, Providence

December 5, Monday
Weight & Wellness Summit Planning Committee
RIMS Council Meeting

December 6, Tuesday
RIMS Physician Health Committee: Herbert Rakatansky, MD, Chair
Conference call with Executive Office of Health and Human Services (EOHHS), Behavioral Healthcare, Developmental Disabilities and Hospitals (BHDDH), and Department of Health (DOH) regarding Opioid Prescriber Toolkit

December 7, Wednesday
Health Equity Summit, RI Convention Center
RIMS Continuing Medical Education Committee Chair Patrick J. Sweeney, MD, PhD, MPH, honored by the Accreditation Council for Continuing Education (ACCME) at ACCME’s State Medical Society Conference in Chicago
RIMS Holiday Open House

December 8, Thursday
SIM Grant Steering Committee: Peter A. Hollmann, MD
Meeting with RI American College of Emergency Physicians and RI Certified Registered Nurse Anesthetists regarding emergency department procedures

December 12, Monday
CPT Seminar: RIMS Vice President Peter A. Hollmann, MD, Presenter

On December 1, RIMS hosted a “Paint & Wine” class at Muse Paintbar for members and guests.
Rhode Island’s First
Weight + Wellness Summit

Convening community resources to create a Rhode Island where healthful, affordable choices in food and physical activity are the natural daily default for all.

Who should attend? Healthcare professionals, policy makers, health advocates, educators, producers and purveyors of wholesome foods, nutritionists, community leaders, urban planners and everyone who has an interest in making regular exercise and sound nutrition convenient and affordable for all Rhode Islanders.

Exhibitor space available (some with scholarships)

For more information contact
Rhode Island Medical Society at 401-443-2386 or cnorton@rimed.org

Please share this with those you think would benefit from attending.

This event is made possible through an educational grant from the Coverys Community Healthcare Foundation.
Doctor’s Choice provides no cost Medicare consultations. Doctor’s Choice was founded by Dr. John Luo, a graduate of the Alpert Medical School at Brown University to provide patient education and guidance when it comes to choosing a Medicare Supplemental, Advantage, or Part D prescription plan. Doctor’s Choice works with individuals in RI, MA, as well as CT and helps compare across a wide variety of Medicare plans including Blue Cross, United Health, Humana, and Harvard Pilgrim.

Neighborhood Health Plan of Rhode Island is a non-profit HMO founded in 1993 in partnership with Rhode Island’s Community Health Centers. Serving over 185,000 members, Neighborhood has doubled in membership, revenue and staff since November 2013. In January 2014, Neighborhood extended its service, benefits and value through the HealthSource RI health insurance exchange, serving 49% the RI exchange market. Neighborhood has been rated by National Committee for Quality Assurance (NCQA) as one of the Top 10 Medicaid health plans in America, every year since ratings began twelve years ago.

RIPCPC is an independent practice association (IPA) of primary care physicians located throughout the state of Rhode Island. The IPA, originally formed in 1994, represent 150 physicians from Family Practice, Internal Medicine and Pediatrics. RIPCPC also has an affiliation with over 200 specialty-care member physicians. Our PCP’s act as primary care providers for over 340,000 patients throughout the state of Rhode Island. The IPA was formed to provide a venue for the smaller independent practices to work together with the ultimate goal of improving quality of care for our patients.

The Rhode Island Medical Society continues to drive forward into the future with the implementation of various new programs. As such, RIMS is expanded its Affinity Program to allow for more of our colleagues in healthcare and related business to work with our membership. RIMS thanks these participants for their support of our membership.

Contact Megan Turcotte for more information: 401-331-3207 or mturcotte@rimed.org
RIMS gratefully acknowledges the practices who participate in our discounted Group Membership Program.

For more information about group rates, please contact Megan Turcotte, RIMS Director of Member Services.
RIMS: Your Voice for 200+ Years
Join your colleagues and add your voice

Membership in The Rhode Island Medical Society (RIMS) makes you a part of a dynamic network of physicians, residents, students, physician assistants, and healthcare professionals who represent, like you, the best of the profession.

The ABCs of membership

Advocacy: RIMS membership offers a cohesive platform for its members to speak with a unified voice on local, state and national issues through committee participation, policy development, legislative representation, educational conferences, and stakeholder seminars.

Benefits: CME sessions, physician health services, preferred career, financial and personal services from our sponsors, membership portal.

Collegiality: Social events, networking opportunities, professional development.

Strength: In numbers. If you are already a member, thank you for your support. If you’re not, join us today. Group, military and new practitioner discounts; medical students join for free.

Click here to learn more about membership.

Alyn L. Adrain, MD, and Peter A. Hollmann, MD, Rhode Island Delegates to the AMA, participate in the formation of national AMA policy at annual House of Delegates meetings in Chicago.

RIMS Executive Director Newell E. Warde, PhD, hosting a free CME seminar for members of the Medical Society.

RIMS maintains close contact with federal and state lawmakers to represent physician and patient interests in emerging legislation. RIMS Public Laws Chair Michael E. Migliori, MD, at left, and RIMS Director of Government and Public Affairs Steven R. DeToy shown here following their meeting with RI Representative David R. Cicilline.

RIMS Leadership: Treasurer José Polanco, MD; Secretary Christine Brousseau, MD; President-Elect Bradley J. Collins, MD; President Sarah J. Fessler, MD; Vice President Peter A. Hollman, MD; and (seated) Immediate Past President Russell A. Settipane, MD.

RIMS hosts social events throughout the year for members and guests.
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Letter to Congress on the Affordable Care Act from the ACP

The following letter was sent by Rhode Island physician Nitin S. Damle, MD, MS, MACP, president of the American College of Physicians (ACP) on Jan. 3.

Dear Majority Leader McConnell,
Minority Leader Schumer, Chairman Michael Enzi, and Ranking Member Bernie Sanders:

On behalf of the American College of Physicians (ACP), I am writing to express our strong concern that the Senate version of the budget resolution for fiscal year 2017 will start a process that could result in repeal of essential coverage and consumer protections established by the Affordable Care Act (ACA) while destabilizing coverage in the meantime, resulting in tens of millions of Americans losing coverage, benefits, and other protections established by current law.

ACP is the largest medical specialty organization and the second-largest physician group in the United States. ACP members include 148,000 internal medicine physicians (internists), related subspecialists, and medical students. Internal medicine physicians are specialists who apply scientific knowledge and clinical expertise to the diagnosis, treatment, and compassionate care of adults across the spectrum from health to complex illness.

The ACP has long supported the goal of universal health coverage. While we acknowledge that the ACA is not perfect (and no law is) and improvements to it can and should be made, our continued support for the ACA is grounded in the fact that it has reduced the uninsured rate to the lowest ever, a major stride toward providing affordable coverage to all Americans. The ACA also ensures key consumer protections for all Americans, including the prohibition against insurers turning down, charging higher premiums, or canceling coverage for 52 million people, one out of 4 Americans, who have pre-existing medical conditions; prohibiting insurers from putting annual or lifetime limits on coverage, and ensuring coverage of essential medical services including no-cost preventive services – protections that apply to just about every American, not just those who get coverage directly from programs created by the ACA.

The congressional leadership’s expressed goal is to follow up on the budget resolution by passing a budget reconciliation package that would repeal these and other key parts of the ACA, while delaying the date when they would sunset to sometime in the future, during which Congress would strive to develop a replacement plan. However, independent and non-partisan analyses show that enactment of such a “repeal, delay and replace” bill, especially without an alternative being offered now that could be thoroughly evaluated based on its impact on quality, access, and coverage, would create chaos in insurance markets, causing plans to pull out of the markets with more than 7 million losing coverage in 2017 alone; full repeal could result in nearly 60 million people becoming uninsured.

Accordingly, our commitment to ensuring that patients have access to affordable coverage and medical care obligates us to urge the Senate to vote no on the budget resolution.

While we cannot support the budget resolution, the College welcomes dialogue on constructive, bipartisan approaches to improve on the ACA by making coverage even more affordable and accessible, including ideas to stabilize insurance markets by bringing more young people into them without disadvantaging older and sicker patients; expand consumer choice of insurance products and of physician and hospitals; ensure network adequacy; support state innovation including in Medicaid provided that current eligibility, benefits, and protections for current and future enrollees are not undermined, reduce administrative burdens on physicians and their patients, and support the critical role played by primary care physicians in providing accessible, high quality and cost-effective care to all types of patients. We encourage Congress to first put forward such ideas for review and consideration rather than committing to a process that would repeal the ACA’s coverage and protections for many millions of people.

Thank you for your consideration and the College looks forward to working with you and the Senate as you move ahead with these important issues.

Sincerely,
Nitin S. Damle, MD, MS, MACP
President
Brown to lease space in proposed Innovation Center

PROVIDENCE – Brown University and the Cambridge Innovation Center (CIC) have signed letters of intent to lease space in an Innovation Center being developed by Wexford Science & Technology.

The letters of intent to lease were announced by Wexford in collaboration with the Rhode Island Commerce Corporation and the I-195 Redevelopment District Commission, which voted on Monday, December 12, to authorize incentives from the state’s I-195 Redevelopment Fund to support the $158 million project.

As envisioned, Phase I of the multipart Wexford project would include a 191,000-square-foot Innovation Center with Brown and the CIC – an incubator and co-working facility that assists entrepreneurs in launching new products and companies – as anchor tenants.

Brown would lease 50,000 square feet of space for a period of 15 years for its School of Professional Studies, which includes a program leading to an executive master of healthcare leadership.

In addition to creating an expanded student presence in the Jewelry District, a new home for the School of Professional Studies will allow for additional programs, significant enrollment growth in existing programs, and the potential for collaboration between CIC startups and Brown student, faculty and alumni entrepreneurs.

Brown’s total investment in the project is expected to exceed $35 million between lease payments, capital improvements, furniture, fixtures and equipment. Wexford and its partners will continue work on project financing and design and expects to break ground in the second quarter of 2017 with completion and occupancy targeted for the first quarter of 2019.

Bryant School of Health Sciences awarded $2.5M grant from Alpert Foundation

SMITHFIELD — Bryant University has secured a $2.5-million challenge grant from the Warren Alpert Foundation in support of its School of Health Sciences. Gifts contributed by June of 2017 up to $2.5 million will be matched by the Foundation. The grant will help Bryant University advance the growth of the School of Health Sciences and develop innovative approaches that address challenges in the health care industry.

Increasing demands for high-quality care at manageable costs drive the need for businesses and practitioners to think and operate innovatively. Developing the best health care delivery systems for the future will require providers and administrators to function interdependently to improve outcomes and create sustainable growth.

Bryant University established the School of Health Sciences in 2014 with the launch of its first clinical program, the Master of Science in Physician Assistant Studies, which will graduate its first class in March 2017.

Bryant is now in the process of developing an integrated Health Care Management program. DAVID FINE, PhD, health care industry executive and scholar with more than 30 years of leadership experience, has joined Bryant’s administration and faculty to help develop an integrated best-in-class curriculum.
HAPPY NEW YEAR!

From all of us at Residential Properties, we would like to wish you a happy and healthy New Year. If you have any real estate needs throughout the upcoming year, we’ve got you covered - whether selling your house, finding a new home, or recruiting talent with the FREE services provided by our award-winning Relocation Department.

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Virgin Pulse to expand in RI after acquiring ShapeUp Inc., founded by Rajiv Kumar, MD

Providence – Virgin Pulse, which acquired ShapeUp Inc. earlier this year, a company co-founded by Brown alumnus Rajiv Kumar ’05, MD ’11, in 2005, will significantly expand its Rhode Island presence and create nearly 300 new jobs in the next five years, the office of Gov. Gina Raimondo announced on Dec. 15 at a press conference.

Virgin Pulse is part of Sir Richard Branson’s Virgin Group. Dr. Kumar, ShapeUp’s CEO, will be staying on as Virgin Pulse’s president and as chief medical officer at its research arm, the Virgin Pulse Institute.

ShapeUp developed comprehensive integrated wellness platforms which included biometric screening, health risk assessments, smoking cessation programs, stress management programs, as well as team events.

Dr. Kumar also co-founded Adopt A Doctor, a nonprofit organization established in 2003 that provides financial support for underpaid doctors in Africa. The roots of Dr. Kumar’s self-described “passion for preventive medicine” run deep in his family. He comes from a family of 30 doctors.

“Prior to its acquisition by Virgin Pulse, ShapeUp benefited immensely from strong partnerships with the Rhode Island state government, local institutions and community leaders. I’m thrilled that Virgin Pulse saw the potential that exists here and decided not only to stay, but to grow our footprint in this supportive and vibrant community,” said Dr. Kumar.

Virgin Pulse is a Framingham, Massachusetts-based wellness company, along with another business, Global Corporate Challenge of Melbourne, Australia. The three-way merger creates what Virgin Pulse says will be the largest well-being company in the world, with more than 450 employees and 2,200 customers across 185 countries.

The company is a provider of software and technology solutions that increase employee productivity and business performance by improving employee health, wellbeing and engagement. Third-party analysis projects the expansion will generate an additional $10.5 million in revenues to the state and nearly $60 million of additional GDP, once Virgin Pulse completes its full hiring.

“We considered a Boston office but ultimately chose Providence because of the access to talent and supportive business climate,” said David Osborne, President and COO of Virgin Pulse. “Our growth strategy is centered on hiring high-potential, early-in-career talent. With its hip vibe, low cost of living and high density of college students, Providence was a great fit from both a business and cultural perspective.”

Johnson & Johnson chooses RI for a Health Technology Center

Providence – Johnson & Johnson plans to open its new health technology center in Rhode Island. The center will specialize in optimizing information technology and data analytics to create software applications that will serve to improve health outcomes. The center expects to fill approximately 75 highly-skilled positions in the first half of 2017.

The new center plans to lease approximately 9,000 square feet of temporary office space at One Ship Street in Providence’s Innovation & Design District and expects to complete its move to Rhode Island by spring 2017. To support its new center, the company intends to apply for incentives under the Qualified Jobs Incentive Act and the First Wave Closing Fund.

“Rhode Island has a strong network of educators, employers and decision makers that are advancing the integration of different health-related technologies,” said Steve Wrenn, Global VP-Chief Applications Officer for Johnson & Johnson. “The ‘I-195 corridor is uniquely suited to support Johnson & Johnson’s new health technology center and Rhode Island gives us access to the economic development tools and university assets we need to stay competitive in the rapidly growing health tech space. As a company with locations and options worldwide, we are very pleased with the opportunity the Ocean State provides for this new center.”

The 75 employees expected to be hired for the new center will specialize in advanced information technology. With assistance from the Rhode Island Commerce Team, Johnson & Johnson will work with local colleges and universities to fill these open roles with top-tier candidates. The company has already begun outreach for this purpose.
Charlton Memorial implants world’s smallest pacemaker

NEW BEDFORD, MASS. – Southcoast Health announced recently that Charlton Memorial Hospital is the first hospital in Southeastern Massachusetts and Rhode Island to implant the world’s smallest pacemaker. DR. ARNOLDAS GIEDRIMAS performed the initial procedure.

Comparable in size to a large vitamin, physicians at Southcoast Health have elected to use the Medtronic Micra Transcatheter Pacing System (TPS) because unlike traditional pacemakers, the device does not require cardiac wires (leads) or a surgical pocket under the skin to deliver a pacing therapy.

Instead, the device is small enough to be delivered through a catheter and implanted directly into the heart with small tines, providing a safe alternative to conventional pacemakers without the complications associated with leads—all while being cosmetically invisible. The Micra TPS is also designed to automatically adjust pacing therapy based on a patient’s activity levels.

“By having a design that is 93 percent smaller than a traditional pacemaker, this pacemaker is able to eliminate the need for leads and a separate pacemaker pocket. This eliminates complications that can come with those aspects and has been shown to have half the complication rate of traditional devices. It offers a new option to patients that have had a prior complication such as device infection, lead fracture or where there is difficulty in using the upper veins to implant the pacemaker. It maintains excellent battery longevity and is MRI compatible. It also offers a new option to patients that want to avoid the cosmetic aspects of a pacemaker in the upper chest area,” explained Dr. Giedrimas.

Recently approved by the U.S. Food and Drug Administration (FDA), the Micra TPS is the only leadless pacemaker approved for use in the U.S. It is approved for patients suffering from bradycardia.

The Micra TPS also incorporates a retrieval feature to enable retrieval of the device when possible; however, the device is designed to be left in the body. For patients who need more than one heart device, the miniaturized Micra TPS was designed with a unique feature that enables it to be permanently turned off so it can remain in the body and a new device can be implanted without risk of electrical interaction.

Hasbro Children’s Hospital opens new 6-bed ‘short-stay’ unit

PROVIDENCE – Hasbro Children’s Hospital has opened a new Pediatric Clinical Decision Unit (CDU) adjacent to the Hasbro Children’s Hospital Emergency Department. The six-bed “short-stay” unit will serve pediatric patients with acute conditions that often require treatment followed by a period of observation and clinical collaboration, often with a specialist.

Patients who may benefit from the new unit include those with asthma, gastroenteritis and dehydration, cellulitis, falls, pain, seizures and headaches or allergic reactions. The average length of stay for a Pediatric CDU patient is 12 to 24 hours.

The new short-stay beds will help open up acute care beds in the emergency department for new patients and improve the overall turnaround time and flow of the emergency department, as well as reduce the rate of patients leaving without being seen.

“In general, many pediatric patients who require hospitalization for acute medical conditions recover quickly and are discharged within 24 hours,” said LYNN PITTSINGER, RN, MSN, director of pediatric emergency services at Hasbro Children’s Hospital. “There are thousands of patients each year spending hours upon hours in the emergency department, or going through the lengthy process of inpatient hospitalization followed by same-day discharge.”

Over the last several years, pediatric emergency department use and overcrowding has steadily increased across the country. Pediatric emergency patients are often healthy, having single medical problems prompting their emergency visits, and medical conditions that require shorter hospital stays. Only about 15 percent of pediatric emergency room visits result in inpatient admissions.

“In observation units, efficient care delivery is achieved through frequent reassessment and timely discharge processes,” said FRANK OVERLY, MD, medical director of the Hasbro Children’s Hospital emergency department. “These units have been shown to have low rates of return visits and readmissions. Most importantly, observation units have been shown to reduce crowding by decreasing inpatient admissions and length of emergency department stay, improving efficiency, and increasing rates of patient and staff satisfaction.”

Also part of the renovation is the addition of a family room with comfortable seating, computer and Wi-Fi access and a quieter, more peaceful environment for parents to rest while their child is under observation. The room is readily accessible from the CDU, so families remain close to their child and the medical care team.
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Having a strict policy will not only protect your office but also help the patient.

**Sending monthly statements may not be enough:**
Most times an office may think that sending a monthly statement can be enough, but is important that you try to make verbal contact with your patient so you have the chance to explain the amount owed and why.

**When is it the right time to get a 3rd party involved:**
If your office is not having success with communicating with the patient. Collection agencies have the manpower to be on the phone throughout the day while you are focusing on your day to day office needs. Keep in mind the longer you hold onto the debts, the harder it is to collect.

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MAKE 2017 THE YEAR THAT YOU DECIDE TO MAKE A FINANCIAL CHANGE TO YOUR BUSINESS
tissues,” Dr. Eaton explains. “Both histones and methylation determines which genes are expressed in different cells or childhood alter his or her DNA methylation, a process that evaluate whether an individual’s socioeconomic struggles in birth through the age of 47 and is aimed at identifying risk factors that may have epigenetic and early developmental childhood origins. One hundred and forty seven participants in the study were examined at Memorial and had fat biopsies and body fat and carotid artery atherosclerosis measured.

“The objective of this recently published research was to evaluate whether an individual’s socioeconomic struggles in childhood alter his or her DNA methylation, a process that determines which genes are expressed in different cells or tissues,” Dr. Eaton explains. “Both histones and methylation are processes that regulate gene expression and determine whether a cell is a muscle cell or a brain cell or fat cell. The pattern of methylation has been shown to be associated with the risk of cancer, cardiovascular disease and becoming obese.

“Epigenetics appears to play a central role in fetal development, and we know that early childhood is a sensitive period during which external environmental stimuli can have considerable influence on the establishment of epigenetic patterning,” he says, adding that this appears to be particularly true for women.

In the Memorial study, three genes were found to have associations with both socioeconomic disadvantage and obesity in women and one gene in men. A review of the medical literature showed that 70 percent of studies evaluating women show a connection between childhood disadvantage and obesity in adulthood, compared with only 27 percent of studies evaluating men.

“There has been some research that examined this alteration through changes in white blood cells, but we analyzed both white blood cells and fat tissue samples taken from study participants as we were interested in obesity,” Dr. Eaton notes. “We found only associations in the fat tissue.”

In identifying the impact of socioeconomic disadvantage, a topic Dr. Eaton says will be pursued through further research, the team hopes to spark the creation of interventions to change the eventual outcomes.

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Memorial researcher: socioeconomic disadvantage may genetically lead to mid-life obesity

**PAWTUCKET –** A new study performed at Memorial Hospital’s Clinical Studies Center in the Center for Primary Care and Prevention with a Brown University team, reveals that the association is likely made through regulation of genes called epigenetics.

**CHARLES B. EATON, MD, MS,** director of the Center for Primary Care and Prevention at Memorial was one of several principal investigators of the study that led to the publication “Epigenetic Mediators Between Childhood Socioeconomic Disadvantage and Mid-Life Body Mass Index: The New England Family Study” in the professional journal *Psychosomatic Medicine.* This sub-study of a large birth cohort study has men and women from before birth through the age of 47 and is aimed at identifying risk factors that may have epigenetic and early developmental childhood origins. One hundred and forty seven participants in the study were examined at Memorial and had fat biopsies and body fat and carotid artery atherosclerosis measured.

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Statewide needs assessment identifies 3 areas of focus: maternal and child health, behavioral health, chronic disease

**PROVIDENCE –** Hospitals will collaborate to address three key health care needs identified during a recent study. Maternal and child health, behavioral health, and chronic disease were found to be important areas impacting the health of Rhode Islanders.

Hospitals gathered in the spring to review the findings of a statewide community health needs assessment (CHNA). Following the session, hospitals agreed to collaborate over the next three years to address maternal and child health, behavioral health, and chronic disease. The CHNA Steering Committee and Rhode Island Department of Health (RI DOH) collaborated to ensure statewide efforts for community health improvements were properly aligned.

In addition to cross-communication between the RI DOH and the CHNA Steering Committee, efforts were made to coordinate local research with the RI DOH Health Equity Zones (HEZ). While hospitals have community-specific implementation plans to address these and other areas, they will continue to meet collectively to address these issues collaboratively and analyze the impact of their activities.

The community health needs assessment provides a comprehensive study of the health care needs of Rhode Islanders. The process was conducted earlier this year by Baker Tilly and included:

- A Secondary Data Profile comprising indicators for each county and hospital service area compared to state and national benchmarks.
- An analysis and comparison of Hospital Discharge Data including emergency room, observation, and inpatient usage.
- Partner Forums with key representatives in each of the three counties served by the CHNA partners.
- Focus Groups with behavioral health consumers and English and Spanish-speaking Latino/a residents.
- An analysis of secondary data provided by the Healthy Communities Institute.

“The 2016 community health needs assessment has provided Rhode Island’s health care community with a comprehensive list of findings,” said HARI President **MICHAEL SOUZA.** “The assessment has allowed Rhode Island’s health care system to encompass and address the health needs within each community.”

In accordance with the Affordable Care Act, hospitals recently received approval from their boards of trustees on the assessment and implementation plans they created. The final reports have been released and can be viewed at www.rihealthcarematters.org.
South County Hospital completes extensive Cancer Center renovations

WAKEFIELD – On Nov. 17, South County Hospital celebrated the completion of 14 months of extensive renovations to its Cancer Center with an open house. Located on the first floor of the Hospital’s Read Wing, the Center allows many existing services to be accessed in one place – a significant benefit for patients and their families, as well as for providers.

The design of the renovation was based on input from the Patient & Family Advisory Council, South County Health oncology providers, and architectural data on best-practice standards for cancer care environments. The result is a light-filled space that is home to exam rooms, physician offices, consultation rooms, infusion therapy bays, education space, a meditation room, and more – finished and furnished in quality materials and a color scheme that reflects the natural hues of this coastal community.

“Bringing many cancer care services together under one roof enhances clinical collaboration and innovation, while creating a more convenient treatment experience for patients and families,” said GERALD COLVIN, DO, Medical Director of Oncology/Hematology. “What we have is a true community cancer center.”

“We treat virtually every kind of cancer,” said medical oncologist JAMES L. SMYTHE, MD, noting that South County Hospital is one of only two hospitals in Rhode Island with a board-certified oncology pharmacist on staff. “Even in cases where a specific treatment is needed for a rare cancer, we work closely with other cancer centers, referring for care when needed and often providing prescribed treatments here at the Hospital. It’s incredibly important that patients have access to quality cancer care close to home. Commuting long distances for care presents very real implications for patients. It requires people to spend time in the car during one of the most difficult times of their lives, instead of with family and friends where they belong.”

In addition, he said, clinical concerns – from fatigue to the stress caused by navigating urban traffic to post-treatment nausea and other complications – mean the convenience of treatment impacts a patient’s well-being.

Accredited by the Commission on Cancer, the services of South County Health’s oncology/hematology program includes board-certified providers, a multi-disciplinary tumor board that meets weekly, oncology nurse navigators, rehabilitation, and complementary therapies such as Reiki and massage.

“By the end of the decade, it’s estimated that 900 Washington County residents will be diagnosed with cancer annually,” LOU GIANCOLA, president/CEO of South County Health, noted at the dedication ceremony. “We have a decades-long tradition of caring for cancer patients here and this newly designed space enhances the delivery of that care by facilitating collaboration among providers and improving the patient and family experience. While there are renowned cancer centers in our area, such as Dana Farber in Boston, we – like other community hospitals across the country – are capable of treating most cancers with the same level of expertise, which is why nationally 85 percent of cancer patients receive treatment in a community hospital setting. The added benefit to patients and families is the comfort and convenience of being able to remain close to home.”

Cutting the ribbon on the renovated Cancer Center at South County Hospital are, from left to right, Claudia Swain, Eve Keenan, Thomas Breen, Kimberly O’Donnell, Lou Giancola, president/CEO of South County Health; Leah Arsenault, RN; Dr. J. Russell Corcoran, Rob Panoff, Noreen Mattis, Ann Marie McGarty, RN; Dr. Aaron Weisbord, Rachel Craven, Dr. James Smythe, and Anne Schmidt.
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Recognition

Patrick Sweeney, MD, receives ACCME national recognition

CHICAGO – On December 7, the Accreditation Council for Continuing Medical Education (ACCME) awarded PATRICK SWEENEY, MD, PhD, MPH, with its 2016 Rutledge W. Howard, MD, Award for Individual Service to the Intrastate Accreditation System at its annual State Medical Society Conference in Chicago. This award is named for Rutledge W. Howard, MD, who helped develop a national system for accrediting intrastate CME providers. It recognizes volunteers for their contributions and commitment to advancing community-based continuing medical education (CME) programs and the intrastate accreditation system.

For the past 23 years, Dr. Sweeney has chaired the Rhode Island Medical Society’s [RIMS] Continuing Education Committee. Under his leadership, RIMS has been continuously designated as an ACCME Recognized Accreditor of intrastate CME. More than wisdom and experience have played a role in Dr. Sweeney’s stewardship of the Medical Society’s CME program. He has given tremendous amounts of his time and talent to intrastate CME, both locally and nationally.

In his career, Dr. Sweeney has been honored 27 times for Excellence in Teaching in various settings. As a site surveyor for the ACCME, he has traveled the country and surveyed over 75 nationally accredited CME programs over the past 23 years. He has served as a member of the ACCME Committee for Review and Recognition and as Vice Chair and Chair of the ACCME Accreditation Review Committee. He was also active with the Alliance for Continuing Education for Healthcare Professionals [ACEhp] as a member of its Board of Directors and CME Advisory Committee, and served on the American College of Obstetricians and Gynecologists’ National Committee on CME as a member, Vice-Chair, and Chair.

On a local level, Dr. Sweeney has served in many roles at Women and Infants Hospital, including as Director of Medical Education, Director of CME, Chair of the CME Committee, and Chair of the Graduate Medical Education Committee. He also spent 17 years as Associate Dean of Medicine for CME at Brown Medical School.

“Through his commitment to advancing high-quality accredited CME throughout Rhode Island and across the US, Dr. Sweeney has demonstrated the power of education to make a difference for the medical profession and the patients we serve,” stated Graham McMahon, MD, MMSc, President and CEO, ACCME. “For more than two decades, he has served as a leader and champion of CME. The Rhode Island Medical Society, the ACCME, and our communities of accreditors, CME providers, and physician learners have benefited from his expertise, professionalism, and passion for education. We celebrate Dr. Sweeney’s decades of service and contributions to communicating the value of CME and to improving healthcare on the local and national levels.”

On behalf of the Rhode Island Medical Society’s leadership and all its members, we proudly acknowledge Dr. Sweeney’s outstanding accomplishment.

Women’s Care Midwifery Service earns National Golden Commendation

The American College of Nurse Midwives (ACNM) recently awarded a Golden Commendation to Women’s Care Midwifery Service, part of the Care New England Medical Group, for providing innovative and compassionate midwifery care to families for more than 20 years.

The practice — which includes FIONA CLEMENT, CNM, MPH; JENNIFER HOPLEY, CNM, MS; MAGGIE KUCH, CNM, MS; LINDA NANNI, CNM, MS; FACNM; LISA PILE, CNM, MS; CYNTHIA SIEGEL, CNM, MS; and DANIELLE WEISNER, CNM, MS — was recognized at the ACNM’s recent regional meeting.

Women’s Care Midwifery Service was opened in 1996 to provide the full scope of care to all women, from teenagers to the elderly.

“In addition to offering care in our Providence office, we see patients in Woonsocket, East Greenwich, East Providence, at community health centers in Coventry and Cranston, and at two inner city offices,” says Nanni, a founding member of the practice and its current director. “This has allowed the entire population to have access to midwifery services regardless of location, social risk, ethnicity or medical risk.”

The ACNM award recognizes this legacy.

Golden Commendations recognize practices across the country for helping to expand access to women’s health care and “putting the heart of midwifery into practice,” according to the ACNM website.

“The spirit of midwifery lives and breathes within Women’s Care,” Nanni said. “We put the patients’ needs and desires first. We seek to develop safe plans for birth regardless of whether the patient is low risk or more medically complex and requiring medical collaboration. We are especially enthusiastic about attending some of our births at Women & Infants’ Alternative Birthing Center.”
Staying competitive in today’s changing healthcare environment can be a challenge. It may require investing in new technologies, expanding services, even merging with another practice.

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Southcoast Hospitals Group named to Becker’s Hospital Review’s list of 100 hospitals and health systems with great neurosurgery and spine programs

Southcoast Health is one of 6 hospitals or systems in New England to make nationwide list

NEW BEDFORD, MASS. — Becker’s Hospital Review has named Southcoast Hospitals Group to the 2016 edition of its list, “100 hospitals and health systems with great neurosurgery and spine programs.” Southcoast Hospitals Group is one of only six hospitals or health systems in all of New England to be included on the list; and this is the second time in four years that Southcoast Hospitals Group has been recognized for this distinction.

“I’m incredibly thankful for the excellent work which is done in our Brain and Spine Center on a daily basis,” said DR. RICHARD MILLER, Physician-in-Chief of the Surgical Care Center at Southcoast Health. “Being named to this list by Becker’s is a public recognition of what we know internally: the right physician leaders can drive clinical excellence. Under the leadership of DR. MATTHEW PHILIPS, we have developed an integrated program which I agree is one of the best in New England.”

According to Becker’s Hospital Review, the hospitals and health systems on this year’s list are national forerunners in neuroscience, providing treatment for patients suffering from various conditions and injuries pertaining to the brain and spine.

To develop this list, Becker’s Hospital Review selected hospitals for inclusion based on national rankings and awards garnered for superior outcomes in neurosurgery, neurological care and spine surgery. Becker’s Hospital Review’s team examined U.S. News & World Report national rankings for neurology and neurosurgery, CareChex national and regional rankings for neurological care, neurosurgery and spine surgery; Blue Distinction Center for Spine Surgery designation; Healthgrades awards for spine surgery, neurosurgery, cranial neurosurgery and stroke care; and Magnet designation for nursing excellence. Becker’s Hospital Review notes that hospitals cannot pay for inclusion on the list.

“Receiving this distinction for a second time in four years reaffirms the dedication of our staff to our mission at the Southcoast Brain and Spine Center,” said Dr. Matthew Philips, Director of the Southcoast Brain and Spine Center. “That mission has always been to provide our community with the highest quality care in the most efficient and compassionate manner.”

Other New England-based hospitals and health systems to make the list in 2016 include Boston Children’s Hospital, Brigham and Women’s Hospital, Massachusetts General Hospital, University of Vermont Medical Center and Yale-New Haven Hospital. To see the complete list, visit www.beckershospitalreview.com/lists/100-hospital-and-health-systems-with-great-neurosurgery-and-spine-programs-2016.

Southcoast Health’s neurology program has recently been recognized as a Top 100 Hospital by CareChex, designated as a Blue Cross Blue Shield Center of Distinction, named a five-star recipient for treatment of stroke by Healthgrades for five years in a row (2012–2016), and recognized by the American Heart Association/American Stroke Association with the Get With the Guidelines-Stroke Gold Plus Quality Achievement Award in 2015.

“I am honored to be recognized as a part of one of the top neurosurgery programs in the country,” said Dr. Alvin Marcovici, Director of Neurosurgery at Southcoast Health. “I am also humbled by the very hard work performed by our nurses, office personnel and hospital staff. This recognition goes to them as much as to the surgeons. Being acknowledged twice in the past four years only shows the consistent hard work done by the Southcoast Brain and Spine team. We are extremely proud to be held in the same company as Baylor Hospital in Houston, Cedars-Sinai in Los Angeles, The Cleveland Clinic, Duke and Johns Hopkins. We are equally proud of providing the same world-class care to our local community.”

Possibilities for all abilities

Aetna is proud to support the members of the Rhode Island Medical Society.
Recognition

**Dr. John Gelzhiser recognized by ACP Hospitalist magazine**

WARWICK – **JOHN GELZHISER, MD**, system director of inpatient medicine at Care New England and hospitalist at Kent Hospital, has been named a Top Doc by the American College of Physicians (ACP) Hospitalist magazine. Dr. Gelzhiser was featured in the November 2016 issue of ACP Hospitalist, a monthly publication from the American College of Physicians that was established in 2007 and helps to keep hospitalists informed about the latest trends and issues in the field.

The ACP Hospitalist Top Doc award recognizes hospitalists who have made notable contributions to the field of internal medicine through exceptional clinical skills, patient safety, improved workflow, leadership, community involvement, and quality improvement.

“On behalf of Kent Hospital, we are extremely proud of Dr. Gelzhiser for this great achievement and for the exceptional work he has accomplished at Kent Hospital and across Care New England,” said **MICHAEL DACEY JR., MD**, chief operating officer, Kent Hospital. “Dr. Gelzhiser started at Kent as a newly educated physician and has grown to lead a very important department and group of physicians. We are grateful for his dedication and clinical expertise each and every day.”

**Women & Infants’ Breast Health Center earns national accreditation**

PROVIDENCE – The Breast Health Center at Women & Infants Hospital has been granted a three-year, full accreditation designation by the National Accreditation Program for Breast Centers (NAPBC), a program administered by the American College of Surgeons.

During the survey process, the Breast Health Center demonstrated compliance with standards established by the NAPBC for treating women who are diagnosed with the full spectrum of breast disease. The standards include proficiency in the areas of: center leadership, clinical management, research, community outreach, professional education, and quality improvement.

Best practice designation was received for eight standards, including Women & Infants’ Women’s Intimacy and Sexual Health Center (WISH) and the Cancer Genetics and Prevention Program. The surveyor noted the depth and strength of the program, including the interdisciplinary breast cancer conference, a weekly assembly of specialists who consider each woman’s case individually. The surveyor noted, “One of the best conferences I have ever observed. Evidence based but with room for discussion and respectful differences of opinion in controversial cases.”

The surveyors also commented on the pathology reports, saying, “Excellent path[ology] reports and integration of path[ology] into the program for both benign and malignant disease. Outstanding pathology support of conference.”

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Appointments

Gildasio S. De Oliveira, MD, named Lifespan’s new chief of anesthesiology
He will create a new residency program and academic division of anesthesiology in the Department of Surgery at Lifespan and Brown University

PROVIDENCE – GILDASIO S. DE OLIVEIRA, MD, MS, MBA, has been named chief of anesthesiology at Lifespan where he will lead clinical services, educational and research activities, and administration of anesthesiology services.

De Oliveira will also serve as head of the division of anesthesiology at Lifespan Physician Group. He will be on the faculty of the Alpert Medical School and serve as the director of the division of anesthesia in the department of surgery.

He previously served as clinical coordinator of Northwestern Memorial Hospital in Chicago where he was responsible for planning the staffing and medically directing anesthesia services for all of Northwestern’s anesthetizing locations – more than 60. He served as the vice chair for research and faculty affairs at the department of anesthesiology at the Feinberg School of Medicine at Northwestern University where he was a faculty member for more than a decade. De Oliveira also served as a faculty member at The Center for Healthcare Studies in the Institute for Public Health and Medicine at Northwestern University.

“The opportunity at Lifespan to engage at every level, in clinical services, research, and education to make a difference for patients and to advance research and learning, is extraordinary,” said De Oliveira, who will create a new residency program and academic division of anesthesiology in the Department of Surgery at Lifespan and Brown University.

In January, De Oliveira will also assume the role of Editor-in-Chief of the Journal of Clinical Anesthesia, a major journal in the field and the official journal for the Society for Education in Anesthesia, the Society for Anesthesiology Clinical Directors and the Society for Airway Management.

At Northwestern, De Oliveira led research in the department of anesthesiology and increased the department’s scholarly activity (peer-reviewed publications) by more than 150 percent. He has published more than 100 peer-reviewed articles and is internationally recognized as an expert in acute post-surgical pain. He has also led many national studies on anesthesiology residency education and is currently an oral board examiner for the American Board of Anesthesiology. He is currently funded by the National Institutes of Health and has been recently nominated as standing member of grant study section review.

“I believe strongly in providing a continuum of care from pre-op, through surgery and post-op,” said De Oliveira. “The overall goal should be to improve the patients’ overall experience and their quality of recovery after surgery.”

A native of Brazil, De Oliveira received his medical degree from the Federal University of Bahia in Brazil, and completed his residency at SUNY Downstate Medical Center in Brooklyn, New York, where he served as chief resident. He also earned a master’s degree in clinical investigation from The Graduate School at Northwestern University, and a master’s in business administration with a major in operations at the Kellogg School of Management at Northwestern University.

De Oliveira replaces Arthur Bert, MD, who will step down as full-time chief of anesthesiology at the end of the year. Bert will serve as interim chief until De Oliveira arrives in February.

De Oliveira will move to the area with his wife, Marcela Almeida, MD, and their three children, Gabriel, Isabella and Julia. “I grew up around the ocean, so coming to Rhode Island brings that back and that’s important, too,” said De Oliveira, who enjoys sailing.

“Dr. De Oliveira brings to Lifespan experience, skill and dedication to patient care, as well as a commitment to research and scholarship,” said Lifespan President and CEO Timothy J. Babineau, MD.

Angela Caliendo, MD, named to Infectious Diseases Society of America’s (IDSA) board

ARLINGTON, VA – Pledging to continue the Infectious Diseases Society of America’s (IDSA) commitment to improving the health of all people, communities and society, William G. Powderly, MD, FIDSA, assumes the reins as the new president of IDSA.

ANGELA CALIENDO, MD, PhD, FIDSA, professor and executive vice chair of medicine and director of the Division of General Internal Medicine at the Alpert Medical School, has been named to its board of directors.

Dr. Caliendo will work with the IDSA’s leadership to reach the new presidential administration and Congress to help shape their understanding of the critical challenges and opportunities facing the field infectious disease medicine.

She is chair of the Microbiology Medical Devices Panel for the Food and Drug Administration (FDA). She was the co-chair of the Clinical Laboratory & Standards Institute (CLSI) Subcommittee on Quantitative Molecular Diagnostics for Infectious Diseases, a member of the CLSI Subcommittee on Genotyping for Infectious Diseases and an advisor on the Subcommittee on Antiviral Susceptibility Testing.

Dr. Caliendo is past president of both the Association of Molecular Pathology and Pan-American Society for Clinical Virology.
Appointments

Sophia Rizk, MD, medical oncologist, joins Southcoast Health

FALL RIVER, MASS – SOPHIA RIZK, MD, a medical oncologist, has joined Southcoast Physicians Group.

Dr. Rizk graduated from Tufts University and received her MD from New York Medical College. She completed her internship, residency and chief residency in internal medicine, followed by her fellowship in hematology and medical oncology at the Alpert Medical School. She is board certified in internal medicine.

Dr. Rizk belongs to a number of professional societies, including the American Society of Hematology and the American Society of Clinical Oncology. She is also a member of the Massachusetts Medical Society, Rhode Island Medical Society and American College of Physicians.

Dr. Rizk loves to share her skills through volunteer work, participating in numerous teaching roles at her alma mater, Brown University, and by working on many published studies and papers. She is proficient in Spanish and Greek.

Allison McAteer, MD, joins Westerly Hospital surgical staff

WESTERLY – Westerly Hospital recently welcomed a new board certified general surgeon to its medical staff – ALLISON MCA TEER, MD. Dr. McAteer is a Rhode Island native and formerly served as Chair of the Department of Surgery at Landmark Medical Center in Woonsocket, RI.

A graduate of Tufts University and Tufts Medical School, Dr. McAteer joined the Brown Medical School Program in surgery, completing her residency in 2000.

Dr. McAteer’s specialties within general surgery include colon surgeries, breast surgeries, hernia repair, gall bladder surgeries, skin cancer removals and also colonoscopies and endoscopies.

A large part of general surgery is caring for patients in the Emergency Department, including urgent surgeries, and Dr. McAteer joins the local surgeons in rotation on call in the Emergency Department.
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OBITUARIES

ERMINIO R. “SONNY” CARDI, MD, 89, of Cranston, passed away peacefully on December 15, 2016, surrounded by his loving family. He was the beloved husband of Clara F. (DelBonis) Cardi.

Dr. Cardi graduated from LaSalle Academy (1945), Providence College (1948), Georgetown University Medical School (1952), and the University of Pennsylvania Graduate School of Medicine in General Surgery.

He served as a Captain in the United States Air Force Medical Corps during the Korean Conflict from 1954-1956, stationed at Eglin Air Force Base, Fort Walton Beach, Florida. He served his internship at Worcester City Hospital and Methodist Hospital in Brooklyn, New York. He was a Diplomat of American Board of General Surgery, a Fellow of American College of Surgeons, a founding member of Providence Medical Society Insurance Agency, Past President of the Providence Surgical Society, Past Secretary of the Rhode Island Medical Society, Past President of the St. Joseph Hospital Medical Staff, and a member of the Board of Trustees of St. Joseph Hospital. He was on staff there from 1960 until his retirement in 1993.

The author of several articles in medical publications, including the New England Journal of Medicine, he also authored changes in Federal Medicare physician reimbursements, introduced intra-operative endoscopic surgery in Rhode Island, and was a primary mover to require all rescue services to carry life-saving adrenaline to treat acute allergic reactions.

Along with his brother Alphonse, he established the Domenic Cardi Scholarship Fund at Providence College in 1969 to help underprivileged students achieve a higher education.

He was the devoted father of the late Raymond P. Cardi, MD, Michael A. Cardi and his wife Diane, Paul D. Cardi, MD, and his wife Gail, Rosemary Hendrickx and her husband Douglas, James K. Cardi, MD, and his wife Monica, and Ginamaria Shapiro and her husband Louis.

PETER SMITH, MD, died December 9, 2016 after a ten-year struggle with Parkinson Disease and Lewy Body Dementia. His wife, Heidi, sister Laska Meseck, and children, Fiona and Kevin, were at his side.

Peter was born April 26, 1941, the son of Richard Smith and Kathryn (Winkel) Smith. His mother was a pianist with a deep love of poetry, and his father wrote and directed plays while working as a civilian safety engineer in the Army. Peter established the “Mighty Boys’ Club” with his sister Laska, a concert pianist, and endlessly teased his older brother Bart, an English professor.

When Peter was 12 years old his family moved to France where he completed high school at the prestigious Lycée Louis le Grand. He met his wife while attending medical school in Basel, Switzerland. There they had two children before impetuously and inexplicably moving to Chattanooga. Four years later he drove a U Haul truck to Providence for a fellowship in pediatric hematology and oncology at Rhode Island Hospital. He joined the faculty of Brown University where he loved teaching, the intellectual challenge of medicine and the emotional intensity of working with children and their families.

Peter spoke French, German, and Spanish fluently and delighted in using his language skills at work, at home, in restaurants, and when traveling throughout Europe, West Africa, and Latin America. He enjoyed travels in Cambodia, Thailand, and Vietnam but never mastered Khmer. He worshiped the great outdoors, spending his spare time and vacations hiking, biking, kayaking, gardening, and bird watching. He shared his mother’s love of music, joining “Les Petits Chanteurs à la Croix de Bois” boys choir in Paris, the Providence Singers, the medical school’s barbershop quartet, and the Robert Shaw Chorale during his sabbatical in Atlanta.

Peter was an adventurous cook and dedicated baker of whole wheat sourdough bread, which was as solid as his ethics and tough as his discipline. He planted a lush meadow by Echo Lake and Epimedium in his woodland.

He is survived by his wife, Heidi of Barrington; his sister Laska of Warren; his daughter Fiona Smith and son-in-law Alex of San Jose, California; his son, Kevin Smith and daughter-in-law Kathy of Boulder, Colorado; and his grandsons Aiden and Kai.

In his memory, donations may be made to Doctors Without Borders or the Rhode Island chapter of the American Parkinson Disease Association.