

# Gerontology

Lewis A. Lipsitz, MD, Chief



Angela Botts, MD, conducts a home visit with a medical student

The Division of Gerontology was established in 1976 to support a core faculty of geriatricians and gerontologists committed to the advancement of knowledge about aging and to the improvement of health care for the older population. It includes clinical and research faculty from BIDMC as well as Hebrew SeniorLife, one of the nation's



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leading clinical research centers in gerontology, providing multilevel long-term care and rehabilitation services for seniors.

## 2009–2010 HIGHLIGHTS

### Clinical Highlights

The Division's clinical activities include ambulatory care, inpatient and outpatient consultation, acute inpatient care, a dedicated inpatient unit, long-term care, geropsychiatry and rehabilitation services. Dr. Julie Moran directs one of the only Aging and Developmental Disabilities Clinics in the United States, serving the increasing population of

aging adults with developmental disabilities. Dr. Angela Botts has initiated a new third year internal medicine clerkship home visit program this year.

These visits are scheduled for patients recently discharged from the hospital, and include medication reconciliation, a review of the home environment and services, a brief assessment of the patient's function and caregiver's stress, and a review of upcoming follow-up appointments.

The Hebrew SeniorLife Department of Medicine provides rehabilitative,

long-term, and acute care for nearly 5,000 elderly people. This year marked the first full year of operation for New Bridge on the Charles, an innovative continuing care retirement community in Dedham, MA that serves seniors ranging from the most independent and fit to the most dependent and chronically ill. It also supports a day school for children who interact with the seniors. The Department of Medicine provides outpatient geriatric care and a new model of patient-centered, long-term care that focuses on the maintenance of independence, functional ability and choice.

### Quality Improvement Highlights

A rehospitalization reduction program on the Recuperative Services Unit (RSU) at Hebrew SeniorLife, directed by Dr. Randi Berkowitz, has decreased



**GRACE Initiative** – The Division of Gerontology has led the creation of GRACE (Global Risk Assessment and Careplan for Elders), a program designed to improve the care for older adults admitted to the hospital. GRACE allows care providers to more easily follow proven strategies to limit functional and cognitive decline that disproportionately affect older adults during hospitalization. Providers now use customized inpatient software programs and a bedside checklist, which prompts care givers to screen for delirium and implement prevention strategies.

the number of avoidable hospital readmissions by twenty percent through improved communication on admission, team meetings to review cases of unplanned discharges, and increased palliative care referrals. As a result, the RSU has been designated one of the demonstration sites for Project RED, a discharge process that has been shown

to decrease readmissions to acute care settings.

### Education Highlights

The HMS Geriatric Medicine Fellowship program has trained 211 new specialists in geriatric medicine since 1980 and is one of the largest in the country. The program offers a research or clinician educator track in addition

## SELECTED PUBLICATIONS

Sorond FA, Galica A, Serrador JM, Kiely DK, Iloputaife I, Cupples LA, Lipsitz LA. Cerebrovascular hemodynamics, gait, and falls in an elderly population: MOBILIZE Boston Study. *Neurology* 2010; 74:1627-1633.

Hsu YH, Zillikens MC, Wilson SG, Farber CR, Demissie S, Soranzo N, Bianchi EN, Grundberg E, Liang L, Richards JB, Estrada K, Zhou Y, van Nas A, Moffatt MF, Zhai G, Hofman A, van Meurs JB, Pols HAP, Price RI, Nilsson O, Pastinen T, Cupples LA, Lusi AJ, Schadt EE, Ferrari S, Uitterlinden AG, Rivadeneira F, Spector TD, Karasik D, Kiel DP. An integration of genome-wide association study and gene expression profiling to prioritize the discovery of novel susceptibility loci for osteoporosis-related traits. *PLoS Genet* 2010; e1000977.

Gangavati AS, Kiely DK, Kulchyci LK, Wolfe RE, Mottley JL, Kelly SP, Nathanson LA, Abrams AP, Lipsitz LA. Prevalence and characteristics of traumatic intracranial hemorrhage in elderly fallers presenting to the emergency department with focal findings. *J Am Geriatr Soc* 2009; 57:1470-4.

Manor B, Hu K, Zhao P, Selim M, Alsop D, Novak P, Lipsitz L, Novak V. Altered control of postural sway following cerebral infarction: a cross-sectional analysis. *Neurology* 2010; 74:458-64.

Rudolph JL, Jones RN, Levkoff SE, Rockett C, Inouye SK, Sellke FW, Khuri SF, Lipsitz LA, Ramlawi B, Levitsky S, Marcantonio ER. Derivation and validation of a preoperative prediction rule for delirium after cardiac surgery. *Circulation* 2009; 119:229-236.

Mitchell SL, Teno JM, Kiely DK, Shaffer ML, Jones JN, Prigerson HG, Volicer L, Givens JL, Hamel MB. The clinical course of advanced dementia. *N Engl J Med* 2009; 361:1529-38.

Novak V, Hu K, Desrochers L, Novak P, Caplan L, Lipsitz L, Selim M. Cerebral flow velocities during daily activities depend on blood pressure in patients with chronic ischemic infarctions. *Stroke* 2010; 41:61-66.

O'Fallon E, Kandell R, Schreiber R, D'Agata EM. Multidrug-resistant gram-negative bacteria at a long-term care facility: assessment of residents, healthcare workers, and inanimate surfaces. *Infect Control Hosp Epidemiol* 2009; 30:1172-9.

## HONORS AND AWARDS

**Angela Botts, MD, Anupama Gangavati, MD, and Elizabeth "Foy" White-Chu, MD,** received Geriatric Academic Career Awards.

**Jane Givens, MD,** received the New Investigator Award, Merck/American Geriatrics Society, 2010.

**Sharon K. Inouye, MD,** received the American Geriatrics Society Edward Hendersen Award, 2010.

**Lewis Lipsitz, MD,** was a recipient of the William Silen Lifetime Achievement in Mentoring Award, Harvard Medical School.

**Jennifer Rhodes-Kropf, MD,** received the Picker Institute and Gold Foundation 2010–2011 Challenge Grant Award.

## RESEARCH FUNDING

	Direct	Indirect
<b>Federal</b>	<b>1,828,138</b>	<b>765,541</b>
<b>Non Federal</b>	<b>1,188,321</b>	<b>133,760</b>
Hebrew Senior Life		
<b>Federal</b>	<b>6,598,256</b>	<b>1,862,503</b>
<b>Non Federal</b>	<b>675,449</b>	<b>66,395</b>

to training beyond the ACGME required clinical year. With the support of a Geriatric Training Grant from the Health Resources and Services Administration (HRSA), the program developed an interdisciplinary curriculum for the training of geriatric medicine, psychiatry and dental fellows. In 2010, the program was awarded a 5-year continuation of the HRSA grant.

### Research Highlights

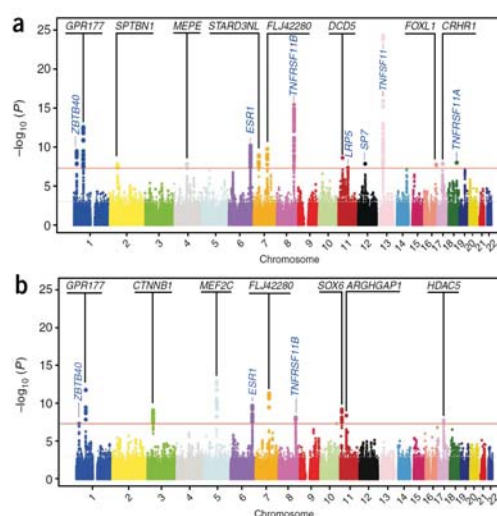
The Division of Gerontology research program spans BIDMC and Hebrew SeniorLife's Institute for Aging Research (IFAR), where projects range from studies of novel risk factors for falls to the genetic epidemiology of complex traits related to aging.

IFAR is the home of the MOBILIZE Boston Study, a population-based prospective cohort study of novel risk factors for falls. Along with Dr. Lewis Lipsitz, Principal Investigator, Drs. Douglas Kiel, Marian Hannan and Sarah Berry reported that the risk factors for indoor and outdoor falls differ. Combining these falls, as is done in many studies, masks important information that could be used to design better interventions. Other findings from this study by Drs.

Lipsitz, Kiel, Hannan, Berry and Elizabeth Samelson include the observation that low medication adherence by seniors is associated with a 50% increased rate of falls. Widespread pain was also shown in the MOBILIZE Boston cohort to be associated with an increased risk for falls. Finally, Drs. Farzaneh Sorond and Lipsitz reported that impaired cerebral blood flow regulation, as measured by cerebral vasoreactivity to carbon dioxide, is associated with slow gait speed and the development of falls in elderly people.

The Division is actively involved in the study of the genetics of complex

diseases related to aging. In the past year, Dr. Ihab Hajjar reported that two polymorphisms in the angiotensin converting enzyme (ACE) modified cognitive performance in seniors taking ACE inhibitors. Drs. Kiel, David Karasik and Yi-Hsiang Hsu joined colleagues from around the world in the identification of novel genes involved in osteoporosis, bone geometry, age of menarche, longevity and serum vitamin D concentration that were published in *Nature Genetics*, *The Lancet*, *PLoS Genetics* and the *Journals of Gerontology*. The findings related to osteoporosis are shown in a typical "Manhattan" plot across the 22 autosomes (below).



Manhattan plots display newly discovered and previously reported (known) loci associated at genome-wide significant level (GWS) with lumbar spine BMD (a) and femoral neck BMD (b) for all 2,543,686 HapMap CEU-imputed SNPs analyzed using fixed-effects. The 13 new GWS loci are in underlined type. Previously reported GWS loci are in blue type.

## FACULTY

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