

**Harvard Medical School  
CURRICULUM VITAE**

**Date Prepared:** October 19, 2018

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**Education:**

2000	BA, Psychology, Mathematics (Minor) Middlebury College
2004	MD, New York Medical College
2010	MPH, Clinical Effectiveness, Harvard School of Public Health

**Postdoctoral Training:**

2004-2005	Intern, Internal Medicine, Beth Israel Deaconess Medical Center
2005-2007	Resident, Internal Medicine, Beth Israel Deaconess Medical Center
2007-2008;	Research Fellow, General Medicine and Primary Care, Harvard
2009-2010	Medical School/Beth Israel Deaconess Medical Center
2008-2009	Chief Medical Resident, Beth Israel Deaconess Medical Center

**Faculty Academic Appointments:**

2008-2009;	Instructor in Medicine, Harvard Medical School
2010-2014	
2014-	Assistant Professor of Medicine, Harvard Medical School

**Appointments at Hospitals/Affiliated Institutions:**

Past:

2007-2008;	Associate Staff, Medicine/General Medicine, Beth Israel
2009-2010	Deaconess Medical Center

Current:

2008-2009; 2010-	Active Staff, Medicine/General Medicine, Beth Israel Deaconess Medical Center
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**Major Administrative Leadership Positions:****Local:**

2006-2013	Coordinator, East Campus House Doctor Program, Beth Israel Deaconess Medical Center
2008-2009	Chief Medical Resident, Beth Israel Deaconess Medical Center
2013-2018	Coordinator, Center for Healthcare Delivery Science, Work-In-Progress Session, Beth Israel Deaconess Medical Center
2016-	Director of Hospital Medicine Research, Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center
2018-	Robinson Firm Chief, Internal Medicine Residency Program, Beth Israel Deaconess Medical Center

**National:**

2013-2015	Course Director, Medical Resident Course in Comparative Physiology, Mount Desert Island Biological Laboratory, Maine
2015-	Course Director, Physiology on the Fly: A Faculty Development Program for Medical Educators Teaching on the General Medical Wards, Mount Desert Island Biological Laboratory, Maine

**Committee Service:****Local:**

2007-	Intern Selection Committee, Department of Medicine, Beth Israel Deaconess Medical Center
2008-2009	Core Clinical Services Committee, Department of Medicine Beth Israel Deaconess Medical Center
2008-2009	Medical Patient Care Committee, Department of Medicine Beth Israel Deaconess Medical Center
2008-2009	Medical Patient Review Committee, Department of Medicine Beth Israel Deaconess Medical Center
2015-	General Medicine Grand Rounds Planning Committee, Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center
2017-	Opioid Care Committee, Beth Israel Deaconess Medical Center

**Professional Societies:**

2003-	Alpha Omega Alpha
<u>2007-</u>	<u>Society of General Internal Medicine</u>
2009	Clinical Medicine Workshop Selection Subcommittee, 33 <sup>rd</sup> Annual National Meeting
2010	Clinical Vignette Selection Subcommittee, 33 <sup>rd</sup> Annual National Meeting
2012	Research Abstract Selection Subcommittee: Chronic Disease Management and Organization of Care, 35 <sup>th</sup> Annual National Meeting

2015	Research Abstract Selection Subcommittee: Hospital Medicine 38 <sup>th</sup> Annual National Meeting
2008-	Society of Hospital Medicine
2011-	International Society for Pharmacoepidemiology
2011-	American Geriatrics Society
2014-	American College of Physicians

## Editorial Activities:

### Ad hoc Reviewer:

New England Journal of Medicine  
 Journal of the American Medical Association  
 Annals of Internal Medicine  
 Archives of Internal Medicine  
 Journal of Hospital Medicine  
 British Medical Journal  
 Pharmacoepidemiology and Drug Safety  
 Clinical Microbiology and Infection  
 Clinical Epidemiology  
 Journal of Critical Care  
 Clinical Infectious Disease  
 Journal of the American Geriatrics Society  
 Pharmacy and Therapeutics  
 Internal and Emergency Medicine

### Other Editorial Roles:

2007	Associate Editor, Last Minute: Internal Medicine [textbook] Edition I, Miksad RA, DelaMore PA, Meyer GK, authors. New York: McGraw Hill, ISBN-13: 978-0071445894
2012-2015	Associate Editor, Journal of Hospital Medicine
2015-	Senior Deputy Editor, Journal of Hospital Medicine

## Honors and Prizes:

2000	Varsity Softball Academic All-Conference (New England Small College Athletic Conference)
2003	American Society of Clinical Pathology Award for Academic Excellence, New York Medical College
2004	The Department of Medicine Academic Award, New York Medical College
2004	The Maurice M. Black, MD, Memorial Award, New York Medical College, given to a member of the graduating class for exceptional achievements in the study of Pathology and Pathophysiology
2004	The Eileen H. Pike, PhD, Memorial Award in Microbiology, New York Medical College
2004	Cor et Manus, Award of Distinction, New York Medical College, in recognition of outstanding service rendered to the medical college

	in the furtherance of its community program, as well as loyalty and devotion to the aims and objectives of the college
2004	American Medical Women's Association, Glasgow-Rubin Achievement Citation, New York Medical College
2005	The James Tullis Award, Beth Israel Deaconess Medical Center, in recognition of intellectual growth and enthusiasm for learning
2006	Teaching Award, Harvard Medical School, excellence in teaching Harvard medical students on the general medical wards
2007	Best Poster, Clinical Scholarship, Resident Research Day, Beth Israel Deaconess Medical Center
2007	The Lowell McGee Award, Medical Housestaff Teaching, Beth Israel Deaconess Medical Center, awarded to one senior resident each year in recognition of the fundamental importance of teaching and to the spirit and substance of being a physician
2009	Geriatric Abstract Stipend Award, Society of General Internal Medicine, 32 <sup>nd</sup> annual national meeting
2009	Mack Lipkin, Sr. Associate Member Award, Society of General Internal Medicine, presented to the three scientific presentations considered most outstanding by students, residents, and fellows, 32 <sup>nd</sup> annual national meeting
2010	Best Oral Presentation by a Fellow, New England Regional Meeting, Society of General Internal Medicine
2011	HOSPYP Award, Hospitalist Teacher of the Year, Hospital Medicine Program, Beth Israel Deaconess Medical Center
2013	Nominee, Charles McCabe Faculty Prize for Excellence in Teaching (Years III & IV), Harvard Medical School
2013	Certificate of Excellence in Tutoring, Harvard Medical School, awarded to faculty tutors for new Pathways courses in Years I & II who receive a score of 1.25 or higher
2014	Outstanding Reviewer, Annals of Internal Medicine
2015	Best Delirium Paper Award, Center of Excellence for Delirium in Aging: Research, Training, and Educational Enhancement
2016	Top Hospitalist, American College of Physicians

## REPORT OF FUNDED AND UNFUNDED PROJECTS

### Funding Information

#### Past Funding:

2010-2011	<i>Advancement of Geriatric Education at Harvard Medical School</i> Donald W. Reynolds Foundation Scholar Attended a monthly seminar on hospital care of the geriatric patient, designed to enhance knowledge and understanding of unique issues related to the elderly during hospitalization.
2011-2013	<i>Assessing and Improving the Quality of Care Transitions in HoMeRuN Hospitals</i>

Hospital Medicine Reengineering Network (HoMeRuN)/  
Association of American Medical Colleges/Beth Israel  
Deaconess Medical Center  
Site Principal Investigator (\$25,000)  
Multi-site cohort study of predictors of readmissions at U.S.  
academic medical centers, in an effort to identify high risk  
subgroups and targeted interventions.

Current Funding:

- 2010- *Reducing Medication Use Fragmentation Across Transitions of Care*  
Center for Integration of Medicine and Innovative Technology (CIMIT), Young Clinician Research Award  
Principal Investigator (\$43,478)  
Developing a clinical decision support information technology intervention to reduce medication use fragmentation across transitions of care.
- 2013-2018 *Improving Use of Sedating Medications in Hospitalized Older Adults*  
NCE 2018-2019 National Institute on Aging (NIA)/K23 AG042459  
Principal Investigator (\$725,710)  
The objectives of this project are to define current usage patterns and risks of sedating medications in hospitalized patients, and use this knowledge to develop an intervention to promote safer prescribing. Two large existing hospital data repositories will be used in a parallel and complementary fashion to investigate current specific hypothesized risks - hospital-acquired pneumonia and in-hospital falls - in two large cohorts of hospitalized patients. The information gained from these analyses will be used to develop and conduct a pilot study of a computerized decision support (CDS) tool that bundles prescribing suggestions with specific preventive interventions for those at highest risk.
- 2018-2023 *Characterizing Opioid-Related Adverse Events in Older Adults After Hospital Discharge*  
Agency for Healthcare Research and Quality (AHRQ)/R01 HS026215  
Principal Investigator (\$1,159,711 - total direct costs)  
The main goals of this study are to define the incidence, predictors, preventability, severity, and functional consequences of opioid-related adverse events among older adults within 30 days of hospital discharge, and to identify systems improvements that could have prevented the events.

**Current Unfunded Projects:**

- 2013-2018 *Fostering Eating After Stroke Using Transcranial Direct Current Simulation Trial*

National Institute of Deafness and Other Communication Disorders (NIDCD)/R01DC012584-01

Medical Monitor (PI: Sandeep Kumar, MD)

The main goals of this study are to investigate two different doses of anodal tDCS versus sham stimulation in dysphagic patients from acute-subacute hemispheric infarcts. The study will also assess other important clinical and radiological covariates influencing swallowing recovery in this cohort. I will review adverse events to help determine their relationship to the study treatment. Due to my Career Development Award, I am not eligible to receive funding for my work on this project.

2016-2020

*Stratified Regression Models for Case-Only Studies*

Patient-Centered Outcomes Research Institute (PCORI)/L ME-1507-31028

Key Personnel (PI: Murray Mittleman, MD, DrPH)

The main goals of this study are to develop analytic techniques using case-only study designs to estimate measures of absolute effect of transient exposures, evaluate heterogeneity of treatment effects, and address time-varying covariates.

## REPORT OF LOCAL TEACHING AND TRAINING

### Teaching of Students in Courses:

2007-2008	Renal Pathophysiology (Tutorial Leader) 2 <sup>nd</sup> year medical students Harvard Medical School 1.5 hour sessions, 3 days per week, for 4 weeks
2007, 2009	Patient Doctor II (Preceptor) 2 <sup>nd</sup> year medical students Harvard Medical School Weekly 2 hour sessions for 12 weeks
2010-2011	Patient Doctor II (Evaluator) 2 <sup>nd</sup> year medical student Harvard Medical School Observed history and physical examination and provided feedback during two 3 hour sessions
2011	Integration Exercises (CPC Discussant) 2 <sup>nd</sup> year medical students Harvard Medical School Modeled clinical problem solving during a 2.5 hour session

### Formal Teaching of Residents, Clinical Fellows and Research Fellows:

2007	Hospitalist as Teacher: The Changing Face of Inpatient Medicine
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	Medical housestaff Beth Israel Deaconess Medical Center One hour lecture
2008	“I’m too Busy to Teach!”: Microskills for Easier Clinical Teaching Resident Report (Faculty) Medical housestaff Beth Israel Deaconess Medical Center One hour lecture
2008-2009	Resident Report Medical housestaff Beth Israel Deaconess Medical Center Chief Resident year, twice per week
2008-2009	M&M Conference Medical housestaff Beth Israel Deaconess Medical Center Chief Resident year, once per month
2009	Acid-Suppressive Medication and Risk for Hospital-Acquired Pneumonia Resident Journal Club (Faculty Discussant) Medical housestaff Beth Israel Deaconess Medical Center One hour didactic discussion
2010	Effective Feedback Medical housestaff Beth Israel Deaconess Medical Center One hour didactic discussion
2010	Article: Clopidogrel With or Without Omeprazole in Coronary Artery Disease Resident Journal Club (Faculty Discussant) Medical housestaff Beth Israel Deaconess Medical Center One hour didactic discussion
2010	Critically Appraising the Literature Resident Report Medical housestaff Beth Israel Deaconess Medical Center One hour lecture
2011	One-Minute Clinical Preceptor Medical housestaff Beth Israel Deaconess Medical Center One hour didactic discussion

2011	Critically Appraising the Literature Thorndike's Lecture Series All medical housestaff Beth Israel Deaconess Medical Center One hour lecture
2012	Article: The Influence of Context on Antimicrobial Prescribing for Febrile Respiratory Illness Resident Journal Club (Faculty Discussant) Medical housestaff Beth Israel Deaconess Medical Center One hour didactic discussion
2012	Article: Inappropriate Prescribing of Proton Pump Inhibitors in Hospitalized Patients Resident Journal Club (Faculty Discussant) Medical housestaff Beth Israel Deaconess Medical Center One hour didactic discussion
2013	Critically Appraising the Literature Thorndike's Lecture Series All medical housestaff Beth Israel Deaconess Medical Center One hour lecture
2014	Article: Proton Pump Inhibitors are Associated with Hypersensitivity Reactions to Drugs in Hospitalized Patients: A Nested Case-Control in a Retrospective Cohort Study Resident Journal Club (Faculty Discussant) Medical housestaff Beth Israel Deaconess Medical Center One hour didactic discussion
2016	Update in Hospital Medicine 2015 Resident Ambulatory Care Conference Medical housestaff Department of Medicine, Beth Israel Deaconess Medical Center One hour lecture

**Clinical Supervisory and Training Responsibilities:**

2007-2010	Preceptor, Healthcare Associates, ambulatory internal medicine clinic, Beth Israel Deaconess Medical Center One to two half sessions per month
2007-	Hospitalist Teaching Attending, inpatient general medicine wards Beth Israel Deaconess Medical Center, 8 weeks per academic year



**Laboratory and Other Research Supervisory and Training Responsibilities:**

2007-2016                      Supervised residents in the water homeostasis module, part of a course on comparative physiology at Mount Desert Island Biological Laboratory in Salisbury Cove, Maine  
One week in September (30 hours), each year

**Mentored Trainees and Faculty:**

2010-2014                      Jed D. Gonzalo, MD, MSc, Associate Professor of Medicine and Public Health Sciences/Assistant Dean for Health Systems Education, Penn State College of Medicine, Hershey, PA  
*Career stage:* Chief Resident and Junior Faculty  
*Mentoring role:* Trainee/faculty research mentor  
*Accomplishments:* Published four manuscripts (citations #5, #9, #12, #13)

2012-                              Joshua W. Allen-Dicker, MD, MPH, Instructor in Medicine, Harvard Medical School/Hospitalist, Division of General Medicine, Beth Israel Deaconess Medical Center, Boston, MA  
*Career stage:* Resident and Junior Faculty  
*Mentoring role:* Trainee/faculty research mentor  
*Accomplishments:* Published four manuscripts (citations #11, #16, #18, #28)

2012-2014                      Anthony C. Breu, MD, Assistant Professor of Medicine, Harvard Medical School/Director, Resident Education, VA Boston Healthcare System, Boston, MA  
*Career stage:* Junior Faculty  
*Mentoring role:* Faculty research mentor  
*Accomplishments:* Published two manuscripts (citation #11 and Other Peer-Reviewed #2)

2015-2017                      Elliot Naidus, MD, Clinical Fellow in Medicine, UCSF School of Medicine/Pulmonary-Critical Care Fellow, University of California San Francisco, San Francisco, CA  
*Career stage:* Trainee  
*Mentoring role:* Trainee research mentor  
*Accomplishments:* Published two manuscripts (citations #29, #30)

2016-2018                      Kelly L. Graham, MD, MPH Instructor in Medicine, Harvard Medical School/Primary Care Physician, Beth Israel Deaconess Medical Center, Boston, MA  
*Career stage:* Junior Faculty  
*Mentoring role:* Faculty research mentor  
*Accomplishments:* Published one manuscript (citation #32).

2017-                              Matthew D. Basciotta, MD, Clinical Fellow in Medicine, Harvard Medical School/Junior Resident, Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA

*Career stage:* Trainee

*Mentoring role:* Trainee research mentor

*Accomplishments:* Project in progress. Investigating the association between antipsychotic exposure and in-hospital mortality.

2017-

Samuel D. Lipten, MD, Clinical Fellow in Medicine, Harvard Medical School/Junior Resident, Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA

*Career stage:* Trainee

*Mentoring role:* Trainee research mentor

*Accomplishments:* Project in progress. Investigating antipsychotic utilization for treatment of delirium in hospitalized patients.

### **Local Invited Presentations:**

*Those presentations below sponsored by outside entities are so noted and the sponsors are identified*

2007

An Analysis of Compliance with Venous Thromboembolism Prophylaxis Guidelines at a Major Academic Medical Center: Prophylaxis for All?  
Grand Rounds  
Department of Medicine, Beth Israel Deaconess Medical Center

2008

“I’m too Busy to Teach!”: Microskills for Easier Clinical Teaching  
General Medicine Professional Development Series  
Lecture  
Division of General Medicine and Primary Care  
Beth Israel Deaconess Medical Center

2008

Acid-Suppressive Medication and Risk for Hospital-Acquired Pneumonia  
General Medicine Professional Development Series  
Lecture  
Division of General Medicine and Primary Care  
Beth Israel Deaconess Medical Center

2011

PPIs: Clinical Uses, and Abuses  
Grand Rounds  
Division of General Medicine and Primary Care  
Beth Israel Deaconess Medical Center

2011

Master Clinician  
Clinicopathologic Conference  
Department of Medicine  
Beth Israel Deaconess Medical Center

2013

Sedatives and Code Blue Events  
Work-In-Progress Meeting  
Lecture

	Department of Emergency Medicine, Beth Israel Deaconess Medical Center
2013	Using the Clinical Data Repository for Pharmacoepidemiologic Investigations Seminar Series Lecture Division of Clinical Informatics, Beth Israel Deaconess Medical Center
2013	Update in Hospital Medicine 2012 Grand Rounds Division of General Medicine and Primary Care Beth Israel Deaconess Medical Center
2014	Update in Hospital Medicine 2013 Grand Rounds Division of General Medicine and Primary Care Beth Israel Deaconess Medical Center
2015	Update in Hospital Medicine 2014 Grand Rounds Division of General Medicine and Primary Care Beth Israel Deaconess Medical Center
2015	Update in Hospital Medicine 2014 Grand Rounds Department of Medicine VA Boston Healthcare System, West Roxbury, MA
2015	Master Clinician Clinicopathologic Conference Department of Medicine Beth Israel Deaconess Medical Center
2016	Update in Hospital Medicine 2015 Grand Rounds Division of General Medicine and Primary Care Beth Israel Deaconess Medical Center
2016	Update in Hospital Medicine 2015 Resident Noon Conference Department of Medicine VA Boston Healthcare System, West Roxbury, MA
2016	Safe Opioid Use in Hospitalized Patients Grand Rounds Department of Medicine Beth Israel Deaconess – Needham, Needham, MA

2017	Update in Hospital Medicine 2016 Grand Rounds Division of General Medicine and Primary Care Beth Israel Deaconess Medical Center
2018	Update in Hospital Medicine 2017 Grand Rounds Division of General Medicine and Primary Care Beth Israel Deaconess Medical Center
2018	Update in Hospital Medicine 2017 Grand Rounds Department of Medicine Beth Israel Deaconess Medical Center – Milton, Milton, MA
2018	Curbing the Opioid Epidemic: How Hospital-Based Clinicians Can Be Part of the Solution Grand Rounds Department of Medicine VA Boston Healthcare System, West Roxbury, MA

## **REPORT OF REGIONAL, NATIONAL AND INTERNATIONAL INVITED TEACHING AND PRESENTATIONS**

*Those presentations below sponsored by outside entities are so noted and the sponsors are identified*

### **Regional:**

2008	Effective Teaching and Feedback in the Age of Duty Hour Reform Workshop Society of General Internal Medicine, New England Regional Meeting, Boston, MA
2009	Acid-Suppressive Medication and Risk for Hospital Acquired Pneumonia Oral abstract presentation Society of General Internal Medicine, New England Regional Meeting, Boston, MA
2010	Acid-suppressive Medication and the Risk for Gastrointestinal Bleed in Non-Critically Ill Hospitalized Patients Oral abstract presentation Society of General Internal Medicine, New England Regional Meeting, Providence, RI
2011	Medication Decisions and Adverse Outcomes Invited Lecture Baystate Medical Center, Springfield, MA

- 2012                      Top 6 Papers in Hospital Medicine from 2011  
Invited Lecture  
Boston Association of Academic Hospitalists in Medicine  
Boston, MA
- 2013                      The ACP Choosing Wisely Campaign, Initiative #2 for Hospital  
Medicine: Do Not Prescribe Medications for Stress Ulcer  
Prophylaxis to Medical Inpatients Unless at High Risk for GI  
Complications  
Invited Lecture  
Society of Hospital Medicine, Boston Chapter, Boston, MA
- 2014                      Research Careers in General Medicine: How to Get Started and Be  
Successful  
Mentoring Panel  
Society of General Internal Medicine, New England Regional  
Meeting, Boston, MA
- 2014                      Update in Hospital Medicine, 2013  
Invited Lecture  
Society of Hospital Medicine, Boston Chapter, Boston, MA
- 2014                      Sedating Medication Use in Hospitalized Patients: Patterns,  
Predictors, Problems  
Invited Lecture  
Center for Quality of Care Research  
Baystate Medical Center, Springfield, MA
- 2016                      Too Much of a Good Thing: The Perils of Purple Pills,  
Pharmaceutical Profiteering, and Prescribing Inertia  
Grand Rounds  
Department of Medicine  
Baystate Medical Center, Springfield, MA
- 2016                      Sedating Medications and Nosocomial Complications  
Invited Lecture  
Center for Quality of Care Research  
Baystate Medical Center, Springfield, MA

**National:**

- 2009                      Acid-Suppressive Medication and Risk for Hospital Acquired  
Pneumonia  
Oral abstract presentation  
Society of General Internal Medicine Annual Meeting, Miami, FL
- 2010                      Acid-Suppressive Medication Use and the Risk for Hospital-  
Acquired Gastrointestinal Bleed  
Oral abstract presentation

- Society of General Internal Medicine Annual Meeting,  
Minneapolis, MN
- 2011      Using Electronic Resources to Answer Clinical Questions  
Workshop  
Society of Hospital Medicine, National Meeting, Dallas, TX
- 2013      Opioid Utilization in Non-Surgical Patients in U.S. Hospitals  
Oral abstract presentation  
Society of Hospital Medicine Annual Meeting, National Harbor,  
MD
- 2014      Antipsychotic Medication and Risk of Nosocomial Pneumonia  
Oral abstract presentation  
Society of General Internal Medicine Annual Meeting, San Diego,  
CA
- 2014      Sedating Medication Use in Hospitalized Patients: Patterns,  
Predictors, Problems  
Invited Lecture  
University of Michigan Health System, Ann Arbor, MI
- 2014      PPIs: Clinical Uses and Abuses  
Invited Lecture  
University of Michigan Health System, Ann Arbor, MI
- 2017      Sedating Medications and Nosocomial Complications  
Invited Lecture  
University of Pennsylvania, Philadelphia, PA
- 2017      The Hospitalist's Role in the Opioid Epidemic  
Invited Lecture  
Society of Hospital Medicine Annual Meeting, Las Vegas, NV
- 2017      Safe Opioid Use in Hospitalized Patients  
Invited Plenary Speaker  
Midwest Hospital Medicine Conference  
Northwestern Memorial Hospital, Chicago, IL
- 2017      Medical complications that result from inaccurate medication  
reconciliation during transitions of care and current methods used to  
reduce errors, unmet needs  
Invited Lecture  
IEEE-NIH Special Topics Conference on Healthcare Innovations  
and Point of Care Technologies: Technology in Translation  
Bethesda, MD
- 2018      Update in Hospital Medicine  
Invited Lecture  
Hospital Medicine 2017

Stowe, VT

2018 Opioids: What Now?  
Invited Lecture  
Society of Hospital Medicine Annual Meeting, Orlando, FL

**International:**

2010 PPIs and Chemoprevention: How Should Issues Regarding Long-term Use of PPIs Be Considered?  
Invited Plenary Speaker  
OESO 10<sup>th</sup> World Congress, Boston, MA, United States

**REPORT OF CLINICAL ACTIVITIES AND INNOVATIONS**

**Current Licensure and Certification:**

2006- Medical License, Commonwealth of Massachusetts  
2007, 2017 Diplomate, American Board of Internal Medicine

**Practice Activities:**

2007- Hospitalist, Hospital Medicine Program, Beth Israel Deaconess Medical Center, 12 weeks per year

**Clinical Innovations:**

2011 Computerized Clinical Decision Support (CDS) Tool to improve appropriateness of acid-suppressive medication prescribing in hospitalized patients at Beth Israel Deaconess Medical Center (BIDMC)  
Based on the information gained from my analyses of acid-suppressive medication use, I assembled and led a team of pharmacists, information systems specialists, and other hospitalists at BIDMC to design a CDS tool to improve the appropriateness of acid-suppressive medication prescribing in the hospital setting. We found that our CDS tool significantly reduced inappropriate prescribing of acid-suppressive medication in a sustained fashion. The development and impact of the CDS tool has been published in the Journal of Hospital Medicine (citation #15 below).

2017 Electronic Opioid Prescribing Dashboard at BIDMC  
I led an initiative to develop an opioid-prescribing dashboard at BIDMC, to provide quality improvement leaders and individual physicians with near real-time feedback on their performance on several metrics for safe opioid prescribing. These metrics were derived from the Consensus Statement on improving the safety of opioid use for acute non-cancer pain in hospitalized adults that I

developed for the Society of Hospital Medicine. I plan to study the impact of this quality improvement initiative in the near future.

## REPORT OF TEACHING AND EDUCATION INNOVATIONS

2007-2016	<p><u>Comparative Physiology Course for Residents, Mount Desert Island Biological Laboratory/Beth Israel Deaconess Medical Center</u></p> <p>Participated in creation of a novel course in comparative physiology for residents. The course involves hands on experiments using aquatic species, intended to highlight physiologic concepts relevant to the care of patients. I participated in all aspects of development and execution, including designing experiments and creating the course syllabus, and served as co-director of the course for 9 years. Participants were initially restricted to Beth Israel Deaconess Medical Center medicine residents, but due to course popularity and word of mouth, we began including surgical residents, as well as residents from across the country shortly after course creation. Our team published a manuscript describing this innovation (citation #3).</p>
2014-	<p><u>Physiology on the Fly Course, Mount Desert Island Biological Laboratory/Beth Israel Deaconess Medical Center</u></p> <p>I led the creation of a novel national course in comparative physiology for faculty teaching on the general medicine wards. This course built off the framework of our resident course above, with added emphasis on professional development, including development of teaching skills and scripts. I led all aspects of development and execution, including curriculum development, syllabus creation, and faculty invitations, and I have served as a course director since conception.</p>

## REPORT OF EDUCATION OF PATIENTS AND SERVICE TO THE COMMUNITY

### Recognition

2009	<p>Publicity on JAMA manuscript on acid-suppressive medication and hospital-acquired pneumonia (citation #1)</p> <p>Organizations conferring recognition: National Public Radio, New York Times, ABC News, CNN, WebMD</p>
2011	<p>Publicity on Archives of Internal Medicine manuscript on acid-suppressive medication and nosocomial gastrointestinal bleeding (citation #2)</p> <p>Organizations conferring recognition: Medscape, Drug Topics</p>
2013	<p>Publicity on Journal of General Internal Medicine manuscript on risk factors for nosocomial gastrointestinal bleeding (citation #6)</p> <p>Organizations conferring recognition: U.S. Pharmacist, Formulary</p>



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| 2013 | Publicity on Journal of Hospital Medicine manuscript on inpatient use of opioids (citation #8)<br>Organizations conferring recognition: National Pain Report, Boston Globe, Fox News, CBS News |
| 2014 | Publicity on Health Affairs manuscript on hospitalizations related to opioid abuse/dependence (citation #24)<br>Organizations conferring recognition: Forbes                                   |
| 2018 | Publicity on Journal of Hospital Medicine manuscripts on safe opioid prescribing (citations #38, #39)<br>Organizations conferring recognition: Science Daily                                   |

## REPORT OF SCHOLARSHIP

### Peer-Reviewed Scholarship in Print or Other Media:

#### Research Investigations:

1. **Herzig SJ**, Howell MD, Ngo LH, Marcantonio ER. Acid-suppressive medication use and the risk for hospital-acquired pneumonia. JAMA 2009 May 27;301(20):2120-8. doi: 10.1001/jama.2009.722. PMID: 19470989.
  - Herzig SJ, Howell MD, Marcantonio ER. Acid-suppressive medication and hospital-acquired pneumonia – reply. JAMA 2009;302(13):1415-1417. doi: 10.1001/jama.2009.1416.
2. **Herzig SJ**, Vaughn BP, Howell MD, Ngo LH, Marcantonio ER. Acid-suppressive medication use and the risk for nosocomial gastrointestinal tract bleeding. Arch Intern Med 2011 Jun 13;171(11):991-7. doi: 10.1001/archinternmed.2011.14. Epub 2011 Feb 14. PMID: 21321285; PMCID: PMC3142477.
3. **Herzig SJ**, Aird WC, Shah BJ, McKernan M, Zeidel ML. From hagfish to humans: teaching comparative physiology to internal medicine residents. Acad Med 2012 Mar;87(3):372-7. doi: 10.1097/ACM.0b013e3182444c1b. PMID: 22373634.
4. **Herzig SJ**, Rudolph JL, Haime M, Ngo LH, Marcantonio ER. Atrial fibrillation at discharge in older cardiac surgery patients: A prospective study of prevalence and associated medication utilization. J Clin Trials 2012 Jan 13;2(1):106. PMID: 24969037; PMCID: PMC4068032.
5. Gonzalo J\*\*, **Herzig S**, Reynolds E, Yang J. Factors associated with non-compliance during 16-hour long call shifts. J Gen Intern Med 2012 Nov;27(11):1424-31. doi: 10.1007/s11606-012-2047-z. Epub 2012 Apr 13. PMID: 22528621; PMCID: PMC3475826.
6. **Herzig SJ**, Rothberg MB, Feinbloom DB, Howell MD, Ho KK, Ngo LH, Marcantonio ER. Risk factors for nosocomial gastrointestinal bleeding and use of acid-suppressive medication in non-critically ill patients. J Gen Intern Med 2013 May;28(5):683-90.

- doi: 10.1007/s11606-012-2296-x. Epub 2013 Jan 5. Erratum in: J Gen Intern Med. 2013 Jul;28(7):978. PMID: 23292499; PMCID: PMC3631055.
7. Rothberg MB, **Herzig SJ**, Pekow PS, Avrunin J, Lagu T, Lindenauer PK. Association between sedating medications and delirium in older inpatients. J Am Geriatr Soc 2013 Jun;61(6):923-30. doi: 10.1111/jgs.12253. Epub 2013 Apr 30. PMID: 23631415.
  8. **Herzig SJ**, Rothberg MB, Cheung M, Ngo LH, Marcantonio ER. Opioid utilization and opioid-related adverse events in nonsurgical patients in US hospitals. J Hosp Med 2014 Feb;9(2):73-81. doi: 10.1002/jhm.2102. Epub 2013 Nov 13. PMID: 24227700; PMCID: PMC3976956.
  9. Gonzalo JD\*\*, Yang JJ, Ngo L, Clark A, Reynolds EE, **Herzig SJ**. Accuracy of residents' retrospective perceptions of 16-hour call admitting shift compliance and characteristics. J Grad Med Educ 2013 Dec;5(4):630-3. doi: 10.4300/JGME-D-12-00311.1. PMID: 24455013; PMCID: PMC3886463.
  10. Bertisch SM, **Herzig SJ**, Winkelman JW, Buettner C. National use of prescription medications for insomnia: NHANES 1999-2010. Sleep 2014 Feb 1;37(2):343-9. doi: 10.5665/sleep.3410. PMID: 24497662; PMCID: PMC3900622.
  11. Breu AC\*\*, Allen-Dicker J\*\*, Mueller S, Palamara K, Hinami K, **Herzig SJ**. Hospitalist and primary care physician perspectives on medication management of chronic conditions for hospitalized patients. J Hosp Med. 2014 May;9(5):303-9. doi: 10.1002/jhm.2137. Epub 2014 Feb 24. PMID: 24616183; PMCID: PMC4017338.
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**Clinical Guidelines and Reports:**

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## Consensus Statement

I led the development of a consensus statement on safe use of opioids for acute non-cancer pain in hospitalized patients for the Society of Hospital Medicine.

Citation #39 above (**Herzig SJ, Mosher HJ, Calcaterra SL, Jena AB, Nuckols TK.** Improving the Safety of Opioid Use for Acute Non-Cancer Pain in Hospitalized Adults: A Consensus Statement

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## NARRATIVE REPORT

After serving as a resident and chief resident at Beth Israel Deaconess Medical Center (BIDMC), and as a general medicine fellow in the Harvard Medical School Fellowship in General Medicine and Primary Care, I joined the faculty of BIDMC in 2010. I am passionate about clinical medicine, research, and medical education, and have distinguished myself as a leader in hospital-based outcomes research.

The goal of my research is to improve care for hospitalized adults. My research focuses broadly on medication safety, and more specifically on patterns of medication utilization in the inpatient setting and associated outcomes, with the goal of informing physician decision-making in this realm. As a federally-funded clinician investigator, I spend the majority of my time on research, including mentoring others through my position as Director of Hospital Medicine Research in the Division of General Medicine and Primary Care and as Senior Faculty in the Center for Healthcare Delivery Science at BIDMC. My work thus far has helped to elucidate the risk and benefits of commonly used medications in the inpatient setting, and has served as the basis for national initiatives aimed at improving prescribing, including the American Board of Internal Medicine's Choosing Wisely Campaign, and a recently released consensus statement on safe opioid prescribing which I developed for the Society of Hospital Medicine. My work has resulted in several high impact publications in journals such as JAMA, Annals of Internal Medicine, JAMA-IM, and BMJ, to name a few, and has garnered national attention in the lay press, including a television interview on Fox news, a radio interview on NPR, and newspaper articles in the New York Times, Boston Globe, and others. In recognition of my research accomplishments, I was asked to join the editorial staff of the Journal of Hospital Medicine, where I have served as a Senior Deputy Editor since 2015. I am currently funded through R01 HS026215 from the Agency for Healthcare Research and Quality to conduct a multicenter study to better understand what happens to patients after they are discharged from the hospital with an opioid prescription.

In addition to generating new information regarding the risks and benefits of commonly used medications in the hospital setting, I also spend a significant portion of my time developing ways to translate this knowledge into practice change. I was recently awarded the distinction of "Top Hospitalist" from the American College of Physicians for my work translating my research into meaningful quality improvement for hospitalized patients. I have led two large, multidisciplinary medication safety initiatives in the last several years. First, based on the information gained from my analyses of acid-suppressive medication use, I assembled a team of pharmacists, information systems specialists, and other hospitalists at BIDMC to design a computerized decision support (CDS) tool to improve the appropriateness of acid-suppressive medication prescribing in the hospital setting. We found that our CDS tool significantly reduced inappropriate prescribing of acid-suppressive medication in a sustained fashion. More recently I have spearheaded an initiative to develop an opioid-prescribing dashboard at BIDMC, to provide quality improvement leaders and individual physicians with near real-time feedback on their performance on several metrics for safe opioid prescribing. These metrics were derived from the Consensus Statement on improving the safety of opioid use for acute non-cancer

pain in hospitalized adults that I developed for the Society of Hospital Medicine. I plan to study the impact of this quality improvement initiative in the near future.

In addition to my research interests, clinical care and teaching have always assumed great importance in my career. I have been involved in teaching since the start of medical school as a tutor, continuing through residency, both formally and informally. I was honored to serve as a Chief Medical Resident at BIDMC for the 2008-2009 academic year, and have received several teaching awards both as a resident and as a hospitalist at BIDMC. Most recently, I was named Robinson Firm Chief – a role reserved for distinguished clinician educators at BIDMC – which entails teaching and advising medicine residents in the Medicine Residency Program. I continue to work clinically as a hospitalist on our teaching services, supervising and teaching residents and medical students while managing medically complex patients during acute care episodes.

Practicing as an academic hospitalist places me in the ideal position to continue my research, clinical care, and teaching pursuits. I look forward to continuing my contributions to the quality of medical care through my research on medication safety in hospitalized patients, my involvement with the education of housestaff, and my direct care of patients.