

BIOGRAPHICAL SKETCH

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NAME: Landrigan, Christopher P.

eRA COMMONS USER NAME (credential, e.g., agency login): landrigan123

POSITION TITLE: Associate Professor of Pediatrics and Medicine, Harvard Medical School

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Haverford College, Haverford, PA	B.A.	05/1991	English
Mount Sinai Medical School, New York, NY	M.D.	05/1995	Medicine
Harvard School of Public Health, Boston, MA	M.P.H.	06/2000	Public Health

A. Personal Statement

I am the Research and Fellowship Director of Inpatient Pediatrics at Boston Children's Hospital, Director of the Sleep and Patient Safety Program at Brigham and Women's Hospital, and a practicing pediatric hospitalist. I am the Past Chair and a current Executive Council member of the Pediatric Research in Inpatient Settings (PRIS) network. I have been the PI on a series of single- and multi-center projects that have designed and introduced innovative reforms of hospital systems of care, and evaluated the effects of these innovations. Most notably, these have included changes in resident work hours and scheduling systems, and I-PASS, a multi-faceted intervention to improve communications between healthcare providers. I am currently PI of the 32-center Mentored Implementation of I-PASS Study, and the 7-center Patient and Family Centered I-PASS Study, which is evaluating the impact of family-centered rounds, structured communication, interprofessional coordination, and principles of health literacy on patient safety, patient and family experience, and shared understanding among family members and providers. Over my career I have mentored numerous students, residents, fellows, and junior faculty. Most of my trainees have continued to pursue academic careers, and many are now medical school faculty at the Associate Professor (2), Assistant Professor (8), or Instructor (5) level. Six have received national research awards for work done under my mentorship.

B. Positions and Honors

1995-1998 Intern and Resident in Pediatrics, Boston Children's Hospital, Boston, MA
 1998-2000 Fellow, Hospital Medicine / Clinical Effectiveness, Boston Children's Hospital
 2000- Assistant in Medicine, Boston Children's Hospital
 2001-2003 Instructor of Pediatrics, Harvard Medical School, Boston, MA
 2001- Research and Fellowship Director, Children's Hospital Inpatient Pediatrics Service
 2003- Associate Physician, Division of Sleep Medicine, Brigham and Women's Hospital, Boston, MA
 2004- Assistant Professor of Pediatrics, Harvard Medical School
 2004- Director, Sleep and Patient Safety Program, Brigham and Women's Hospital
 2005 Health Policy Fellow, United States Department of Health and Human Services, Washington, DC
 2005- Assistant Professor of Medicine, Harvard Medical School
 2006 Work Hours Consultant, New Zealand District Health Boards, Auckland, New Zealand
 2007- Honorary Associate Professor, Warwick Medical School, Coventry, United Kingdom
 2007- Senior Project Scientist, Institute for Healthcare Improvement, Cambridge, MA
 2010- Associate Professor of Medicine and Pediatrics, Harvard Medical School, Boston, MA

Other Experience and Professional Memberships

1995-	Fellow, American Academy of Pediatrics
1998-	Charter Member, Society of Hospital Medicine (2010- Senior Fellow in Hospital Medicine)
1999-	Member, Academic Pediatrics Association
2002-2009	Chair, Pediatric Research in Inpatient Settings (PRIS) Research Network
2005-2007	Dissemination Taskforce Member, AHRQ Patient Safety Research Coordinating Center
2005-	Member, Presidential Taskforce on Sleep and Public Policy, Sleep Research Society
2006	Member, AHRQ Annual Meeting Planning Committee
2006-	Member, Sleep Research Society
2008-	Member, Executive Research Committee, Academic Pediatrics Association
2009-	Immediate Past Chair, PRIS Research Network
2009	Elected to Membership in the Society for Pediatric Research (SPR)
2011	Elected to Membership in the American Society for Clinical Investigation (ASCI)
2012	Elected to Membership in the American Pediatric Society (APS)

Honors and Awards

1994	Alpha Omega Alpha, Mount Sinai Medical School, New York, NY
1995	George James Award for Best Epidemiologic Study, Mount Sinai Medical School
1995	Arthur Ross Award for Excellence, Mount Sinai Medical School
1997	Von L. Meyer Traveling Fellowship, Boston Children's Hospital
2001	Medical Student Teaching Award, Harvard Medical School, Boston Children's Hospital
2005	Charles A. Janeway Award for Excellence in Clinical Teaching, Boston Children's Hospital
2005	Grantee of the Month (November), U.S. Agency for Healthcare Research and Quality
2006	Saul Horowitz, Jr. Memorial Award for Outstanding Achievements in Medicine, Mount Sinai
2006	Healthy Sleep Community Award, National Sleep Foundation (co-recipient)
2006	Excellence in Research Award, Society of Hospital Medicine
2006	Young Investigator Award, Sleep Research Society
2006	Brock Armstrong Visiting Lectureship, University of Alberta, Edmonton, Canada
2007	Helfer Award for Innovation in Pediatric Education, Ambulatory Pediatrics Association (co-recipient)
2008	Nemours Child Health Services Research Award, AcademyHealth
2011	Helfer Award for Innovation in Pediatric Education, Ambulatory Pediatrics Association (co-recipient)
2012	Honorable Mention, AAMC Healthcare Innovation Challenge Award for I-PASS handoff program
2013	Leading Practice Award, Accreditation Canada / Agora for I-PASS handoff program
2014	Medical Educator Award, for Mentorship in Medical Education, Boston Children's Hospital
2015	Cox Award, Healthcare Acceleration Challenge, Harvard Business School / Harvard Medical School
2016	John M. Eisenberg Award for Innovation in Patient Safety and Quality at the National Level, Joint Commission and National Quality Forum for I-PASS Study Group
2017	Luke Vincent Powers Memorial Lectureship, Beth Israel Deaconess Medical Center

C. Contribution to Science

1. I have developed and tested I-PASS, a novel intervention to improve teamwork and standardize communication among healthcare providers that has led to decreased medical errors. Handoff effectiveness is a key driver of error risk. Selected peer-reviewed publications in this area are provided below.
 - a. Starmer AJ, Sectish TC, Simon DW, Keohane C, McSweeney ME, Chung EY, Yoon CS, Lipsitz SR, Wassner AJ, Harper MB, **Landrigan CP**. Rates of medical errors and preventable adverse events among hospitalized children following implementation of a resident handoff bundle. *JAMA*. 2013;310:2262-2270. PMID: 24302089.
 - b. Starmer AJ, Spector ND, Srivastava R, West DC,... Sectish TC, and **Landrigan CP** for the I-PASS Study Group. Changes in medical errors after implementation of a resident handoff program. *New Engl J Med*. 2014;371:1803-1812. PMID: 25372088.
 - c. Starmer AJ, O'Toole JK, Rosenbluth G, Calaman S, Balmer D, West DC, Bale JF, Yu CE, Noble EL, Tse LL, Srivastava R, **Landrigan CP**, Sectish TC, Spector ND; and members of the I-PASS Education Executive Committee. Development, implementation, and dissemination of the I-PASS

handoff curriculum: a multi-site educational intervention to improve patient handoffs. *Acad Med.* 2014;89:876-884. PMID: 24871238

2. I have led a series of studies to evaluate the relationship between physician work hours and patient safety, and to develop interventions to reduce fatigue-related errors. Selected peer-reviewed publications in this area are provided below.
 - a. **Landrigan CP**, Rothschild JM, Cronin JW, et al. Effect of reducing interns' work hours on serious medical errors in intensive care units. *New Engl J Med.* 2004;351:1838-48. PMID: 15509817.
 - b. Lockley SW, Cronin JW, Evans EE, Cade BE, Lee CJ, **Landrigan CP**, Rothschild JM, Katz JT, Lilly CM, Stone PH, Aeschbach D, Czeisler CA. Effect of reducing interns' weekly work hours on sleep and attentional failures. *New Engl J Med.* 2004;351:1829-1837. PMID: 15509816
 - c. **Landrigan CP**, Fahrenkopf AM, Lewin D, Sharek PJ, Barger LK, Eisner M, Edwards S, Chiang VW, Wiedermann BL, Sectish TC. Effects of the Accreditation Council for Graduate Medical Education duty hour limits on sleep, work hours, and safety. *Pediatrics.* 2008;122:250-258. PMID: 18676540
 - d. Rothschild JM, Keohane CA, Rogers S, Gardner R, Lipsitz SR, Salzberg CA, Yu T, Yoon CS, Williams DH, Wien MF, Czeisler CA, Bates DW, **Landrigan CP**. Risks of complications by attending physicians after performing nighttime procedures. *JAMA.* 2009;302:1565-72. PMID: 19826026.

3. I have been a leader in the field of patient safety by developing measures and measuring harms. Selected peer-reviewed publications in this area are provided below.
 - a. Kaushal R, Bates DW, **Landrigan C**, et al. Medication errors and adverse drug events in pediatric inpatients. *JAMA.* 2001;285:2114-20. PMID: 11311101.
 - b. **Landrigan CP**, Parry G, Bones CB, Hackbarth AD, Goldmann DA, Sharek PJ. Temporal trends in rates of patient harm due to medical care. *New Engl J Med.* 2010;363:2124-2134. PMID: 21105794.
 - c. Rothschild JM, **Landrigan CP**, Cronin JW, et al. The critical care safety study: the incidence and nature of adverse events and near-misses in intensive care. *Crit Care Med.* 2005;33:1694-1700. PMID:16096443.
 - d. Sharek PJ, Parry G, Goldmann DA, Bones CB, Hackbarth AD, Rhoda D, Murphy C, **Landrigan CP**. Performance characteristics of a methodology to quantify adverse events over time in hospitalized patients. *Health Serv Res.* 2011;46:654-678. PMID: PMC3064924.

List of Published Work

<https://www.ncbi.nlm.nih.gov/pubmed/?term=christopher+p+landrigan>

D. Research Support

Ongoing Research Support

1P30HS024453-01

Singer (PI)

09/30/2015-09/29/2019

AHRQ

“Engineering Highly Reliable Communication and Coordination Systems for High Risk Patients”

This project seeks to develop highly reliable systems that address communication and coordination challenges that pose patient safety risks at the intersection of primary and specialty care. I am helping with a subproject developing coordination systems for children with medical complexity undergoing surgery.

Role: Co-investigator

1K12HS022986-01

Finkelstein (PI)

08/01/2014-07/31/2019

AHRQ

“Mentored Career Development for Child and Family Centered Outcomes Research”

The goal of the project to create a “learning health system” to improve child health will require a new generation of researchers whose work is more directly aligned with the expressed needs of patients, providers, and healthcare systems. The evidence base they create, using child (and family) centered comparative effectiveness methods, will inform decisions of patients and providers that affect not only immediate health outcomes, but also long term life course trajectories

Role: Mentor

CDR-1306-03556 PCORI	Landrigan (PI)	04/15/2014-09/30/2018
<p>“Bringing I-PASS to the Bedside: A Communication Bundle to Improve Patient Safety and Experience” We are studying the effects of incorporating I-PASS communication strategies into morning family-centered rounds and other family communications in seven hospitals. We hypothesize that using these communication tools will reduce miscommunications and will lead to decreases in medical errors as well as improvements in patient and family hospital experience. Role: PI</p>		
No number CRICO/Harvard Risk Management Foundation	Landrigan (PI)	03/01/2016-02/28/2018
<p>“I-PASS: Improved Handoffs for Safer Care at CRICO Hospitals” This 5-center project will implement I-PASS in five Harvard-affiliated hospitals. Program adoption and spread within the institutions will be closely monitored. The quality of handoffs and the incidence of handoff related care failures before vs. after implementation will be assessed. Role: PI</p>		
U01 HL111478 NHLBI	Landrigan, Czeisler (MPIs)	07/01/2012-01/31/2018
<p>“Multi-Center Trial of Limiting PGY2&3 Resident Work Hours on Patient Safety” In the <i>ROSTERS</i> study (Randomized Order Safety Trial Evaluating Resident Schedules), we are working through the Sleep Research Network to conduct a six-center randomized crossover trial evaluating the effect on patient safety, resident safety, and education of eliminating shifts >16 hours for 2nd and 3rd year pediatric residents in pediatric intensive care units. Role: Multiple Principal Investigator</p>		
1R18HS023291 AHRQ	Landrigan (PI)	09/30/2014-09/29/2017
<p>“Mentored Implementation of I-PASS for Better Handoffs and Safer Care” Communication failures are a leading cause of serious errors. We have developed “I-PASS,” a bundle of handoff practices and tools that we previously found reduced errors and adverse events in 9 hospitals. We are now studying implementation of I-PASS in 32 adult and pediatric hospitals through the Society for Hospital Medicine’s award-winning Mentored Implementation program. Role: PI</p>		
1R01OH010300-01A1 NIOSH	Barger (PI)	10/01/2013-08/31/2017
<p>“Impact of Eliminating Extended Duration Work Shifts on Resident Health and Safety” We are conducting a national cohort study to evaluate the effects of sleep deprivation on resident physician health and safety. Data on resident safety will be compared before vs. after the 2011 ACGME Duty Hour changes. Role: Site PI</p>		
<p><u>Completed Research Support</u> (selected from >30 previously funded studies)</p>		
5U18HS020513 AHRQ	Schuster (PI)	03/01/2011-02/28/2016
<p>“Children’s Hospital Boston Center of Excellence for Quality Measurement” The Center of Excellence is developing quality of care measures for national application. I am leading development of one of the Center’s measures, the Global Assessment of Pediatric Patient Safety (GAPPS). Role: Co-Investigator, Project Leader, Advisory Board Member</p>		
5R01HL095472 NIH (NHLBI)	Czeisler (PI)	10/01/2010-03/31/2015
<p>“Effects of Attending Surgeon and Obstetrician Fatigue on Operating Room Safety”</p>		

We are conducting an intensive study in the operating rooms of two hospitals using established direct observational techniques and measurement tools to determine if sleep deprivation increases senior surgeons' and obstetricians' risk of error. Intra-operative processes and outcomes are being quantified and categorized, as are downstream complications and errors.

Role: Co-Principal Investigator

5R01HS019826-05

Keren (PI)

09/30/2010-09/29/2014

AHRQ

"PHIS+: Augmenting the Pediatric Health Information System with Clinical Data"

In this project, the PRIS Network is working to enhance the Child Health Corporation of America's (CHCA) existing electronic database, Pediatric Health Information Systems (PHIS) by incorporating clinical data from 6 pediatric medical centers. Following initial development of this database, we are conducting four comparative effectiveness projects using this dataset. I am the site PI, and PI of one of the four comparative effectiveness projects, comparing the effectiveness of alternative antibiotic regimens in the management of osteomyelitis.

Role: Site Principal Investigator, Scientific Oversight Committee Member