

# ***Boston Combined Residency Program***



**The Pediatric Residency Training Program**  
of  
**Boston Children's Hospital**  
Harvard Medical School  
and  
**Boston Medical Center**  
Boston University School of Medicine



July 2018 edition

**CLASS OF 2019**

## BOSTON COMBINED RESIDENCY PROGRAM



## CONTENTS

<b>History.....</b>	<b>3</b>	Rotation descriptions.....	46	Global health picture gallery.....	83
BCRP.....	3	Night call.....	52	Global health funding.....	84
Boston Children's Hospital.....	3	Longitudinal ambulatory.....	53	Diversity and Inclusion.....	84
Boston Medical Center.....	8	Electives.....	53	Minority faculty.....	85
<b>People.....</b>	<b>11</b>	Individualized curriculum.....	54	Salaries and benefits.....	86
Program director biosketches.....	11	Academic development block..	54	Child care.....	87
Residency program leadership.....	12	Education.....	56	Office of fellowship training.....	87
Interns and residents.....	13	Conferences.....	56	Cost of living.....	88
Interns.....	13	Resident as teacher.....	58	<b>After hours.....</b>	<b>91</b>
Junior residents.....	16	Simulators.....	59	With colleagues.....	91
Senior residents.....	19	Libraries.....	60	Having fun picture gallery.....	93
Chief residents.....	22	Medical information systems.....	60	Boston.....	97
Faculty leaders.....	23	Research.....	61	Within Massachusetts.....	102
<b>Facilities.....</b>	<b>25</b>	Resident research.....	62	New England.....	103
Boston Children's Hospital.....	25	Research tracks.....	70	Outdoor activities.....	104
Harvard Medical School.....	27	The personal touch.....	71	<b>Fellowships.....</b>	<b>107</b>
Boston Medical Center.....	28	Intern orientation.....	71	<b>Results.....</b>	<b>108</b>
Boston Univ Medical School.....	30	Advisors and mentorship.....	71	What residents do next.....	108
<b>Program.....</b>	<b>31</b>	Housestaff lounge.....	72	Select societies and awards.....	108
Tracks.....	32	Retreats.....	72	Examples of resident careers.....	110
Program organization.....	34	Family friendliness.....	72	<b>Application.....</b>	<b>115</b>
BCRP administration.....	35	Orientation picture gallery.....	73	PL-1 applicants.....	115
2018-2019 BCRP Program.....	35	Retreat picture gallery.....	74	International applicants.....	117
Other program features.....	38	Benefiting the community.....	76	Interviews.....	118
Residency-wide events.....	39	International opportunities.....	79	PL-2 and PL-3 applicants.....	120
Flexibility.....	40	Global health curriculum.....	79	Med-Peds applicants.....	120
Rotations.....	41	Global health electives.....	80	How to get here, where to stay....	120
Rotation schedules.....	43	Global health fellowships.....	81	Contacts.....	120

# History

## Boston Combined Residency Program

In 1996, the Boston Combined Residency Program (BCRP) was created by merging the separate pediatric training programs at Boston Children's Hospital and Boston Medical Center. The BCRP, the first combined residency program in pediatrics in the US, also brought together two major medical schools (Harvard Medical School and Boston University School of Medicine).

The architects of this merger were Fred Lovejoy and Bob Vinci, the educational leaders at BCH and BMC who then served as the initial program directors for the BCRP. The educational, clinical and research accomplishments of each institution formed the foundation for this collaborative venture. The BCRP merger had, at its core, a singular emphasis of



**Fred Lovejoy and Bob Vinci**

pediatric education and was built upon the rich tradition of the previously separate training programs at Boston Children's Hospital and Boston Medical Center. Lovejoy and Vinci worked together for an entire academic year, crafting together the BCRP with a primary mission of training residents as excellent pediatricians but also emphasizing preparation for academic leadership in the general and subspecialty disciplines. It was their belief that by providing a foundation of clinical and educational experiences while creating opportunities for independence and learning, the BCRP would establish a culture of academic excellence that would enhance the training of pediatricians who would become academic, clinical and educational leaders of the future.

The BCRP, now in its 22nd year, continues to flourish and adapt to the changing elements of pediatric training. Our program continues to support the diverse interests of our house staff in an environment that provides clinical experiences at both Boston Children's Hospital and Boston Medical Center in strong partnership with our dedicated pediatric faculty.

## Boston Children's Hospital

### 1869-1881

Soon after the Civil War, in 1869, Dr. Francis Henry Brown organized a small group of Harvard Medical School graduates joined by Boston's civic leaders to establish a 20 bed Children's Hospital in a townhouse on Rutland Street in Boston's South End. The hospital treated just 30 patients that first year. One year later the Children's Hospital relocated to a larger building on the same street. The patients were predominately Irish immigrants and many had traumatic injuries or infectious diseases. Philanthropy completely supported the new hospital. Sister Theresa and the Anglican Order of the Sisters of St. Margaret oversaw the nursing care of the children for the first 45 years of the hospital's existence.

### 1882-1913

By 1882 having outgrown its current structure, the hospital was moved to Huntington Avenue near the current Symphony Hall. This larger building was designed especially for children's needs. As the range of illnesses grew, so did the professional staff. Between the years 1882 and 1914 the practice of pediatrics was recognized as a specialty and Harvard Medical School made its first appointment of a physician devoted solely to the care of children. The first medical house officers (interns and externs) were appointed and a nursing school was opened to educate nurses.



**Children's Hospital neighbors were far different in 1914 than today.**



## BOSTON COMBINED RESIDENCY PROGRAM

### 1914-1945

In the early 1900s Harvard Medical School moved to the former Ebenezer Francis Farm, its current site, and in 1914 the Children's Hospital relocated to its current address on Longwood Avenue immediately next to the Medical School. During this era the Hunnewell building housed the children until a series of "cottages" were built to minimize the spread of infection. These "cottages" housed medical, surgical and orthopedic patients. Departments now differentiated into Surgery, Medicine, Radiology, Orthopaedics, and Pathology to mention only a few. Cystic fibrosis, erythroblastosis fetalis and other diseases were described and studied by Children's Hospital physicians. Pediatric medicine subspecialized into metabolism, hematology and bacteriology. Surgeons developed new techniques for repairing congenital abnormalities. The field of cardiac surgery was begun and the iron lung for polio victims was developed by physicians at Children's Hospital and the Harvard School of Public Health. Harvard medical students began to learn pediatrics at the Children's Hospital. The housestaff grew from 3-4 in 1900 to over 30 in the early 40s. Women became residents when men left to serve in World War II. The Medical & Nursing Alumni Associations were established. During this period, Children's Hospital forged strong bonds with other institutions including the House of the Good Samaritan (for rheumatic fever patients), the Sarah Fuller School (for deaf children), the Judge Baker Children's Center (for psychiatric illness) and the Sharon Sanatorium. Remarkably, in 1939 the average cost of a hospital visit was just \$1.50.

### 1946-1990

During the years 1946 to 1990 the Children's Hospital was well positioned to take a leadership role in pediatric health. Experienced physicians returned from the military



**Before the mid-1950s, Children's wards were separated into cottages to limit the spread of infection. The white marble buildings of Harvard Medical School are in the background.**



**John Enders in his lab at Children's in 1965.**

research building (1970) named for Dr. John Enders, recipient of the Nobel Prize for his work with polio virus. In 1987 a new inpatient facility was built bringing the number of inpatient beds to 330. Old diseases such as polio, measles, pertussis, meningitis, pneumonias, and epiglottitis decreased in prevalence because of vaccines, and new antibiotics, only to be replaced by new diseases like HIV, Kawasaki's, substance abuse, and the autism spectrum disorders. The faculty in all departments grew rapidly. The medical housestaff by 1990 numbered over 86 residents. All subspecialties had developed outstanding fellowships. The hospital was now a primary education site for Harvard medical students and elective students from throughout the US, and Children's Hospital enjoyed both a national and international reputation.

### 1990-Present

The years since 1990 have seen increasing excellence in patient care, great research productivity, new medical innovations, and remarkable contributions to pediatric medical education. Children's Hospital clinicians have pioneered lung, liver, and multiple organ transplants, innovative procedures for short gut syndrome, surgery using robotics and lasers, the development of tissue engineered organs, the use of small devices to repair holes in the heart, hydroxyurea to treat sickle cell disease, gene therapy, novel treatments for vascular malformations, and fetal intervention for hypoplastic left heart syndrome, among others. Children's researchers have developed treatments for blood disorders, regenerated damaged nerves, identified genes associated with specific diseases, developed new vaccines for serious illnesses, created disease-specific human stem cells, invented genomic tools to classify tumors and identify new drug therapies, become leaders in gene therapy and developed whole new fields, such as angiogenesis.

## Children's Hospital Milestones

- 1869** Boston Children's Hospital opens as a 20-bed facility at 9 Rutland Street in Boston's South End.
- 1891** Children's establishes the nation's first laboratory for the modification and production of bacteria-free milk.
- 1920** Dr. William Ladd devises procedures for correcting various congenital defects such as intestinal malformations, launching the specialty of pediatric surgery.
- 1922** Dr. James Gamble analyzes the composition of body fluids and develops a method for intravenous feeding that saves the lives of thousands of infants at risk of dehydration from diarrhea.
- 1932** Dr. Louis Diamond characterizes Rh disease, in which a fetus's blood is incompatible with its mother's. Diamond later develops exchange transfusion to treat the disease.
- 1938** Dr. Robert Gross performs the world's first successful surgical procedure to correct a congenital cardiovascular defect, ushering in the era of modern pediatric cardiac surgery.
- 1947** Dr. Sidney Farber achieves the world's first successful remission of acute leukemia. He goes on to found the Dana-Farber Cancer Institute.
- 1954** Dr. John Enders and his colleagues win the Nobel Prize for successfully culturing the polio virus in 1949, making possible the development of the Salk and Sabin vaccines. Enders and his team went on to culture the measles virus.
- 1971** Dr. Judah Folkman publishes "Tumor angiogenesis: therapeutic implications" in the New England Journal of Medicine. It is the first paper to describe Folkman's theory that tumors recruit new blood vessels to grow.
- 1978** Dr. Stuart Orkin develops restriction endonuclease mapping to diagnose thalassemia in utero. A similar technique led to the development of prenatal tests for sickle cell anemia in 1982.
- 1983** Children's physicians report the first surgical correction of hypoplastic left heart syndrome, a defect in which an infant is born without a left ventricle. The procedure is the first to correct what previously had been a fatal condition.
- 1985** The Howard Hughes Medical Institute funds a major research program in molecular genetics, the first HHMI program at a pediatric hospital.
- 1986** Children's surgeons perform the hospital's first heart transplant.
- 1986** Drs. Louis Kunkel and Stuart Orkin and their research teams develop the technique of positional cloning to identify the genes responsible for Duchenne muscular dystrophy and chronic granulomatous disease, respectively.
- 1989** Researchers in Neurology and Genetics discover that beta amyloid, a protein that accumulates in the brains of people with Alzheimer's disease, is toxic to neurons, indicating the possible cause of the degenerative disease.
- 1990** Dr. Joseph Murray, chief of Plastic Surgery emeritus, wins the Nobel Prize for his pioneering work in organ transplantation.
- 1996** Boston Combined Residency Program formed.
- 1997** Endostatin, one of the most potent inhibitors of angiogenesis, is discovered by Drs. Michael O'Reilly and Judah Folkman.
- 1998** Dr. Anthony Atala successfully transplants laboratory-grown bladders into dogs, a major advance in the growing field of tissue engineering.
- 1998** Dr. Evan Snyder clones the first neural stem cells from the human central nervous system.
- 1999** Dr. Todd Golub first uses gene expression microarrays to differentiate cancers.
- 1999** The FDA approves the use of CardioSEAL, a minimally invasive device invented by Dr. James Lock that closes holes in the hearts of the most seriously ill cardiac patients.
- 2000** Dr. Frederick Alt finds that end-joining proteins maintain the stability of DNA, helping to prevent the chromosomal changes that precede cancer.
- 2001** Children's performs the world's first successful fetal repair of hypoplastic left heart syndrome in a 19-week-old fetus.
- 2002** Dr. Nader Rifai co-authors a landmark study showing that a simple and inexpensive blood test for C-reactive protein is a more powerful predictor of a person's risk of heart attack or stroke than LDL cholesterol.
- 2002** Drs. Scott Pomeroy and Todd Golub use microarray gene expression profiling to identify different types of brain tumors and predict clinical outcomes.
- 2003** Drs. Heung Bae Kim and Tom Jaksic develop, test and successfully perform the world's first-ever serial transverse enteroplasty (STEP) procedure, a potential lifesaving surgical procedure for patients with short bowel syndrome.
- 2004** Dr. Marsha Moses and her colleagues show that ADAM 12, when found in urine, is a reliable indicator of the presence of breast cancer.
- 2005** Dr. Stephen Harrison and colleagues show how a key part of the human immunodeficiency virus (HIV) changes shape, triggering other changes that allow the AIDS virus to enter and infect cells.
- 2005** Dr. Raif Geha discovers a gene mutation that causes common variable Immunodeficiency (CVID) and IgA deficiency.
- 2006** Dr. Scott Armstrong identifies self-renewal genes that turn a normal blood cell progenitor into a leukemic stem cell.
- 2006** Dr. Dale Umetsu and colleagues characterize NKT cells, which may play an important role in causing asthma, even in the absence of conventional T-helper cells.

## BOSTON COMBINED RESIDENCY PROGRAM

- 2006** Dr. Hannah Kinney links sudden infant death syndrome (SIDS) to abnormalities in the brainstem serotonin system, which regulates breathing, blood pressure, body heat and arousal.
- 2006** Children's urologists successfully implant laboratory-grown bladders, the first completely tissue-engineered organs to be implanted in humans, in seven children with spina bifida.
- 2006** Dr. Doug Cowan creates a tissue-engineered, electrically conductive implant for the heart and shows that it functions well in mice.
- 2006** Drs. Sean Wu, Stuart Orkin and colleagues discover a type of stem cell that is the precursor to at least two main cell types that form the heart.
- 2007** Dr. Charles Nelson proves that abandoned children do much better cognitively if moved from institutions to foster care.
- 2007** Dr. Len Zon discovers that prostaglandin E2 greatly stimulates the growth of blood and probably other tissue stem cells.
- 2007** Dr. Lois Smith finds that omega-3-polyunsaturated fatty acids reduce pathological retinal angiogenesis and are a potential therapy for retinopathy of prematurity.
- 2007** Dr. David Ludwig demonstrates that diets rich in rapidly-digested carbohydrates not only expand waistlines, but may also cause fatty liver disease.
- 2007** Cardiac surgeons Drs. Virna Sales and John Mayer create living, growing heart valves in an animal model using tissue engineering techniques.
- 2008** Dr. George Daley discovers how to reprogram human somatic cells to pluripotent stem cells with defined transcription factors.
- 2008** Dr. Chris Walsh and his colleagues identify several genetic loci that cause autism.
- 2008** Drs. Vijay Sankaran and Stuart Orkin discover that the fetal hemoglobin to adult hemoglobin switch is controlled by the BCL11A transcription factor. This solves a decades old problem in hematology and has important implications for the treatment of sickle cell disease and thalassemias.
- 2008** Dr. Zhi He observes that stimulation of the mTOR pathway increases axon regeneration after CNS injury. Subsequently, in 2012, Dr. He describes methods for achieving robust and sustained axon regeneration.
- 2008** A consortium led by Dr. Joel Hirschhorn discovered six new genetic variants linked to obesity. Most are active in the brain, suggesting that differences in appetite regulation contribute to obesity.
- 2008** Neurobiology researchers at Children's successfully get damaged nerves to recover and regrow in a mouse model by temporarily silencing genes that normally prevent regeneration.
- 2008** Dr. Scott Armstrong discovers MLL is caused by an epigenetic change that leads DOT1L to alter chromosome structure and activate normally silent genes.
- 2008** Children's neuroscientists identify Npas4, the first known "master switch" in brain cells to orchestrate the formation and maintenance of inhibitory synapses.
- 2009** Immune Disease Institute joins Children's Hospital as the Program in Cellular and Molecular Medicine.
- 2009** Drs. George Daley and Richard Gregory show that the microRNA, Lin 28, plays an important role in germ cell development and cancer.
- 2009** Drs. Len Zon and George Daley discover that blood flow triggers development of hematopoietic stem cells.
- 2010** Dr. Jon Kagan and his team show that peroxisomes are important in the innate immunity against viruses.
- 2011** Drs. Luigi Notarangelo, Sung-Yun Pai and David Williams achieve the first successful treatment of severe combined immunodeficiency by gene therapy in the US.
- 2011** Drs. Stuart Orkin, Vijay Sankaran and their colleagues are able to correct sickle cell disease in mice by silencing BCL11A, which shows that the fetal hemoglobin switch can be reversed.
- 2012** Dr. Heung Bae Kim develops novel method to stretch arteries in vivo for repair of arterial defects.
- 2012** Standardized Clinical Assessment and Management Plans (SCAMPS) method developed for reducing costs and variability of care and improving outcomes.
- 2013** Drs. Amy Starmer, Ted Sectish and Chris Landrigan develop a patient handoff method (I-PASS) that greatly reduces medical errors and preventable adverse events.
- 2013** Dr. Dan Bauer discovers an erythroid specific enhancer of BCL11A whose deletion raises fetal hemoglobin without affecting BCL11A in the brain and lymphocytes where it is needed. The discovery opens the door to gene editing of BCL11A as a treatment for sickle cell disease and thalassemia.
- 2013** Dr. Joseph Majzoub finds that MRAP2, a protein that regulates melanocortin signaling, is involved in body weight regulation in humans.
- 2014** Drs. Jeff Burns and Tracy Wolbrink launch OPENPediatrics, an innovative web-based digital learning platform linking physicians and nurses across the world.
- 2014** Dr. Rani George discovers that neuroblastomas that overexpress MYC oncoproteins are selectively killed, without systemic toxicity, by inhibiting cyclin-dependent kinase 7 (CDK7).
- 2014** Dr. Fernando Camargo discovers that the Hippo-signaling pathway maintains the differentiated hepatocyte state. Loss of Hippo causes hepatocytes to revert to a progenitor state.
- 2014** Dr. Derrick Rossi devises a procedure to reprogram myeloid cells into hematopoietic stem cells.
- 2014** Dr. Carla Kim identifies mechanisms that drive the differentiation of lung stem cells and contribute to alveolar repair after injury.
- 2015** Dr. Joel Hirschhorn and others identify a large number of genes that contribute to obesity and body fat distribution.
- 2015** Dr. Len Zon defines the perivascular hematopoietic stem cell (HSC) niche and shows that epoxyeicosatrienoic acid lipids enhance HSC engraftment.
- 2015** Dr. Beth Stevens wins MacArthur "Genius" Award for defining the role of microglia in synapse pruning in development and Alzheimer's disease.

## BOSTON COMBINED RESIDENCY PROGRAM

- 2015** Dr. Louis Kunkel and his colleagues show that overexpression of the Jagged protein ameliorates Duchenne muscular dystrophy suggesting a possible therapy for the disease.
- 2015** Dr. Hao Wu visualizes the structure of the inflammasome, which activates innate immunity, and how it is assembled.
- 2015** Dr. Umut Ozcan discovers that Celastrol, a pentacyclic triterpene extracted from the roots of the thunder god vine plant, is a leptin sensitizer and a powerful anti-obesity agent.
- 2016** Dr. Len Zon shows that reversion to a neural crest identity initiates the first cancerous cell in melanoma.
- 2016** Dr. Min Dong shows that the Frizzled proteins are the gastrointestinal receptors for *C. difficile* toxin.
- 2016** Dr. Beth Stevens reports the important discovery that the complement pathway and microglia, which prune excess synapses during normal brain development, are inappropriately activated and cause synaptic loss early in Alzheimer's disease.
- 2016** Dr. Judy Lieberman discovers a new innate pathway for intracellular killing of bacteria by gasdermin D, which binds to the bacterial membrane and forms a lethal pore.
- 2016** Dr. George Daley and his colleagues find that loss of the let-7 microRNA family plays a key role in the development of neuroblastomas and is associated with a poor outcome.
- 2016** Dr. Seth Rakoff-Nahoum discovers that some gut bacteria cooperate by metabolizing nutrients for each other; likely the first of many examples of microbial symbiosis.
- 2016** Dr. Seth Rakoff-Nahoum discovers that some gut bacteria cooperate by metabolizing nutrients for each other; likely the first of many examples of microbial symbiosis.
- 2017** Children's hematology/oncology faculty member George Q. Daley becomes Dean of Harvard Medical School.
- 2017** Researchers at Children's and Beth Israel Deaconess Hospitals discover how the Ube3a gene impairs sociability in autism.
- 2017** Nick Haining identifies Ptpn2 and other cancer immunotherapy targets using a genetic screen
- 2017** Mark Fleming and his colleagues discover a key mechanism in the remodeling of erythroblasts to red blood cells.
- 2017** David Williams, Christy Duncan and their colleagues successfully treat cerebral adrenoleukodystrophy with gene therapy.
- 2017** Todd Golub creates a Connectivity Map linking more than a million genes, drugs, and disease states by virtue of their common gene-expression signatures.
- 2018** Vijay Sankaran shows that in Diamond-Blackfan anemia decreased numbers of ribosomes profoundly decreases translation of RNAs needed for erythroid differentiation.
- 2018** Thomas Kirchhausen develops a new microscope that achieves remarkable high resolution, noninvasive imaging of subcellular processes in large cell volumes.
- 2018** Dr Michael Wessels and his colleagues show that in necrotizing fasciitis, *Streptococcus* hijacks the pain and neural regulation of the immune response



## Boston Medical Center

The establishment of Boston City Hospital in 1864 was a major accomplishment for the City of Boston. Boston City Hospital was the first municipal hospital established in the United States.

As a municipal institution, Boston City Hospital began to provide much needed health care to both the urban poor of Boston and the ever-increasing number of Irish Immigrants entering the city during the mid-19<sup>th</sup> century. Boston Medical Center, which is the result of the 1996 merger of Boston City Hospital and University Hospital, exists on the grounds of the original Boston City Hospital. In the first 50 years of its existence, Boston City Hospital did not have a Pediatric Service. Children were admitted to one of the four Medical or Surgical Services in wards that housed adults. In 1919 Boston City Hospital determined that two buildings, near the site of the current Menino Pavilion would be dedicated to the care of children and this began the Pediatric Service. With support from the City of Boston, funds were earmarked for a free standing Children's Building, and in honor of the wife of Mayor Curley, the Mary E. Curley Pavilion for Children opened in 1932. This nine story facility housed a Walk-In Clinic, an Ambulatory Clinic and a large inpatient Pediatric ward service, which occupied five stories of the Curley Pavilion. A number of the current faculty provided care in the Curley Pavilion.



***Early Boston City Hospital ambulance***

Over the years, the Pediatric Service at Boston City Hospital has continued its long tradition of providing service and patient care to the children and families of Boston. The Department continues to be a national leader in areas of advocacy, urban health and health services research. Since

its inception under Dr. Martin J. English in 1923, and the continued leadership of the preeminent pediatricians of their time—Drs. Eli Friedman, Sydney Gellis, Horace Gezon, Joel Alpert, Barry Zuckerman and Bob Vinci — the mission of the department has continued to be integrated with the changing needs of our patient population. The Department remains committed to solving the health care challenges of the urban poor and focuses its clinical and research expertise in topics such as racial disparities, malnutrition, infectious diseases, childhood obesity, autism and medical informatics. While the landscape of Boston has seen many changes in the 150-year history of Boston City Hospital/Boston Medical Center, the consistent mission of the Department of Pediatrics remains imbedded in the framework of the families and children they serve. A [review](#) of the innovations pioneered by the Department has been published.



***Boston City Hospital, circa 1903***



## Boston Medical Center Milestones

- 1848** The Boston Female Medical College is established as the first medical school created for educating women physicians. It later became the New England Female Medical College.
- 1850** Samuel Shattuck, known as the Father of Public Health, is the primary author of the "Report of the Sanitary Commission of Massachusetts."
- 1873** Boston University merges with the New England Female Medical College to establish the Boston University School of Medicine
- 1897** Dr. Solomon Carter Fuller, who would become the nation's first black psychiatrist, graduates from the BUSM. A pioneer in Alzheimer's research, Dr. Fuller was an early proponent of minority recruitment.
- 1946** Dr. Sydney Gellis becomes Chief of the Department of Pediatrics at Boston City Hospital. Dr. Gellis was the 1959 President of the Society for Pediatric Research and would later become Dean of BUSM in 1962.
- 1970** Under the direction of Dr. Robert Klein, the Department of Pediatrics at Boston City Hospital developed one of the first childhood lead poisoning programs in the nation.
- 1972** Dr. Joel Alpert becomes Chief of Pediatrics and in 1973 was awarded funding from RWJ to develop primary care residency training. Dr. Alpert and Dr. Alan Cohen then received the first Federal Funding for the first Primary Care Residency Training Program in the nation, and the Pediatrics Dept at Boston City Hospital developed a national reputation for residency training in primary care and community based pediatrics.
- 1974** Dr. Jerome Klein describes his work on occult bacteremia in the New England Journal of Medicine. Dr. Klein was the 2002 recipient of the prestigious Maxwell Finland Award for Lifetime Achievement in Pediatric Infectious Disease.
- 1982** Dr. Barry Zuckerman establishes a Developmental and Behavioral Pediatric Fellowship Program that has trained over 35 leaders in DBP across the nation.
- 1989** Drs. Robert Needleman and Barry Zuckerman, with colleague Kathleen Fitzgerald Rice, begin Reach out and Read (ROR). In 1998, ROR received federal funding to establish a national model of literacy education promoted by pediatricians. Currently there are more than 4500 sites, serving more than 5 million children nationally. 28,000 pediatricians, nurses and other clinicians have been trained in the ROR strategy of early literacy.
- 1989** The Pediatric HIV program joins the NIH network to develop new approaches to the treatment and prevention of HIV. Under the leadership of Jerome Klein and Steve Pelton, the division participates in landmark studies of AZT in the newborn infant and helps to establish the Women and Infants study of vertical transmission.
- 1990** Hortensia Amaro establishes the MOM's Project, a community-based intervention program aimed at improving birth outcomes and reducing drug use among pregnant women by linking them with healthcare services, social service supports, counseling and peer support.
- 1992** Child Witness to Violence Project is launched. In addition to counseling affected children, the program trains frontline professionals, police, and family court officials to recognize the signs children show when they have witnessed violence
- 1993** Barry Zuckerman becomes Chief of Pediatrics and establishes the Family Advocacy Program. This unique collaboration between lawyers and pediatricians, now called the Medical-Legal Partnership Boston (MLPB), provides direct, proactive legal assistance in the clinical setting to families at Boston Medical Center. The MLPB also educates health care professionals to identify non-medical barriers to a patient's health and to incorporate advocacy as part of their treatment plan. In 2007 the Robert Wood Johnson and Kellogg Foundations provided support to establish the National Center of MLP to disseminate the model nationally. Presently there are over 220 MLP Programs
- 1994** With \$40 million support from the Commonwealth Fund and other foundations, Drs. Barry Zuckerman, Steven Parker, Marilyn Augustyn and Margot Kaplan-Sanoff developed and implemented Healthy Steps at 12 sites nationally.
- 1996** Boston Combined Residency Program (BCRP) formed.
- 1996** Boston Medical Center (BMC) was created by the merger of Boston City Hospital and University Hospital.
- 1996** Project HEALTH (Helping Empower, Advocate and Lead through Health), currently called HealthLeads, was founded by Rebecca Onie as a collaboration of Harvard undergraduates and Boston Medical Center's Department of Pediatrics. It has grown to a network of college volunteers and health care mentors that aid urban children and families.
- 1997** Children's Sentinel Nutritional Assessment Program formed. CSNAP (now Children's Healthwatch) is a multisite surveillance program of children birth to 3 years of age that monitors the impact of economic conditions and public policies on the health and well-being of very young children.
- 1999** Under the direction of Dr. Bobbi Philipp, BMC became the first hospital in New England to achieve Baby-Friendly status, fully implementing the Baby-Friendly Hospital Initiative, Ten Steps to Successful Breastfeeding.
- 2003** BMC Pediatrics opens the first hospital-based preventive-care food pantry
- 2004** Drs. Chi Huang and CC Lee establish the Global Child Health Initiative at Boston Medical Center and the BCRP

## CBOSTON COMBINED RESIDENCY PROGRAM

- 2004** Boston University School of Medicine is designated as the new site for the National Emerging Infectious Diseases Laboratories (NEIDL). This is one of only four non-governmental Biosafety level 4 laboratories in North America. Designed to anticipate the research needs of investigators over the next 20 years, the lab engages in cutting-edge research into diagnostic tests, treatments and vaccines for emerging infectious diseases
- 2004** Department of Pediatrics establishes the SPARK Center. The Spark Center (a merger of two innovative programs: the Children's AIDS Program and the Family Development Center) is a model childcare program offering comprehensive, integrated services for children and families whose lives are affected by medical, emotional and/or behavioral challenges.
- 2006** During the first 10 years of its formal organization, 15 members of the Division of General Pediatrics received 18 career development awards from the NIH and various foundations.
- 2008** Boston University School of Medicine is awarded a Clinical and Translational Science Institute named the BU-BRIDGE from the NIH. The focus of this 7 million dollar award is to increase the amount of translational research done at BUSM/BMC.
- 2009** Project HEALTH receives a \$2M grant from the Robert Wood Johnson Foundation to support the Family Help Desk model in other institutions. Today, Project HEALTH's 600 college volunteers staff Family Help Desks in 6 cities that assist over 4,500 patients and their families annually in securing health related community resources.
- 2011** Drs. Julie Herlihy and Bob Vinci establish a 4-yr Child Global Health Residency in collaboration with the Center for Global Health and Development at the BU School of Public Health.
- 2011** Dr. Howard Bauchner is named the 16<sup>th</sup> Editor in Chief of the Journal of the American Medical Association
- 2013** Dr Bob Vinci becomes the Chief of Pediatrics at Boston Medical Center and the Boston Univ School of Medicine.
- 2013** Dr. Debra Frank is the recipient of the AMA 2013 Excellence in Medicine Award
- 2014** The Department of Pediatrics received the 2014 APA Health Care Delivery Award.
- 2015** Dr. Bob Vinci receives the Association of Pediatric Program Director's Robert S. Holm Award, honoring an APPD member for extraordinary contributions in pediatric program director leadership and/or support of other directors as a mentor, advisor or role model at a national level through APPD.
- 2015** Lucy Marcil and Michael Hole begin StreetCred, a program that co-locates free tax services in the BMC pediatric outpatient clinic with the goal of ensuring all eligible families receive the Earned Income Tax Credit, one of the proven anti-poverty measures in the US. Since 2016, StreetCred has returned more than \$1.6 million to Boston families
- 2017** The Urban Health and Advocacy Track receives the Academic Pediatric Association's Teaching Program Award, recognizing an outstanding general pediatric program. Programs must demonstrate excellence in educational teaching methods, acceptance by students and/or residents, acceptance by the community and the institution innovations and adaptability, or outstanding quality of the individuals trained in the program.
- 2017** Eileen Costello leads the development of the SOFAR clinic, an interdisciplinary and multi-generational clinic dedicated to caring for parents with substance use disorder and their infants affected by neonatal abstinence syndrome.
- 2017** With a \$25 million donation, the Grayken Center for Addiction is established at BMC and Michael Botticelli named its executive director.

# People

## Program Directors

### Ted Sectish



Dr. Ted Sectish is Professor of Pediatrics, Vice-Chair for Education and Program Director of the pediatric residency training program at Boston Children's Hospital. He came to Children's and the BCRP from Stanford Medical School, where he directed the pediatric residency program for 14 years. Dr. Sectish, is a distinguished educator in pediatrics

and the winner of many teaching awards. He obtained his MD degree from Johns Hopkins and was an intern and resident in pediatrics at Boston Children's Hospital from 1977 to 1980. He spent 13 years as a general pediatrician in Salinas, California before becoming the program director at Stanford. Dr. Sectish has written extensively about residency education, including an article on making pediatric residency programs family friendly, an area of special interest to him (J Pediatr 149: 1-2, 2006). His interest in educational innovation and improvement spans the continuum from undergraduate medical education to graduate medical education and the professional development of practicing physicians. His recent focus is as one of the leaders of the I-PASS Study, a multi-site collaborative research project to standardize the handoff process to reduce medical errors and improve the workflow of residents (JAMA 2013; 310:2262-2270, N Engl J Med 2014; 371: 1803-1812). He was the Executive Director of the Federation of Pediatric Organizations (FOPO) from 2007- 2014. FOPO serves the pediatric community with its Task Forces on Women in Pediatrics and Diversity and Inclusion and its Strategic Initiatives. It hosted a Visioning Summit in 2013 on the Future of the Workforce in Pediatrics. As the Past-President of the Association of Pediatric Program Directors, Dr. Sectish has been involved in national issues related to graduate medical education, including the formation of the Council of Pediatric Sub-specialties, which serves as a home for pediatric sub-specialists and fellowship directors. He is a member of the American Pediatric Society. He is an Executive Council and Board member of the I-PASS Institute, which aims to improve patient safety and standardize communication in medicine.

### Kate Michelson



Dr. Catherine Michelson is Program Director for the Boston Combined Residency Program at Boston Medical Center. She attended college at the University of Notre Dame and obtained her medical degree from the Johns Hopkins School of Medicine. She was a pediatric resident in the Boston Combined Residency Program (BCRP) from 2010-2013 and

served as chief resident from 2013-2014 before joining the faculty at the Boston University School of Medicine as a hospitalist and Associate Program Director. She served as Co-Program Director from 2015-2016 and has served as Program Director since July 2016. Dr. Michelson earned a Master of Medical Sciences in Medical Education from Harvard Medical School and has been a scholar in the Harvard Macy Institute's Programs for Educators in Health Professions and Leading Innovations in Health Care and Education. She has received awards for her teaching and is a faculty leader in the BCRP's Academy of Medical Education. She designed and implemented the Keystone Quarter, a longitudinal experience in outpatient pediatrics and advocacy in the BCRP. In 2015, Dr. Michelson led the residency program through a strategic planning process resulting in a revised mission and 5-year plan. Her areas of focus in education research include: the impacts of longitudinal integrated blocks and other structural innovations to training, resident assessment program evaluation, and advocacy training. She has a special interest in resident wellness and support. Dr. Michelson is a member of the Association for Pediatric Program Directors, the American Academy of Pediatrics and Alpha Omega Alpha. She and her husband Ken, who she met in residency and who is a pediatric emergency medicine physician at Boston Children's Hospital, live in Needham.



## Residency Program Leadership



**Gary R. Fleisher, MD**  
*Physician-in-Chief & Chair, Dept of Medicine  
Boston Children's Hospital*



**Robert J. Vinci, MD**  
*Chair, Dept. of Pediatrics  
Boston Medical Center*



**Theodore C. Sectish, MD**  
*Vice Chair for Education &  
Program Director  
Boston Children's Hospital*



**Catherine D. Michelson MD, MMSC**  
*Program Director  
Boston Medical Center*



**Thomas J. Sandora, MD, MPH**  
*Assoc. Program Director  
Boston Children's Hospital*



**Ronald C. Samuels, MD**  
*Assoc. Program Director  
Boston Children's Hospital*



**Scott E. Hadland, MD, MPH**  
*Assoc. Program Director  
Boston Medical Center*



**Carolyn H. Marcus MD**  
*Assoc. Program Director  
Boston Children's Hospital*



**Ariel S. Winn, MD**  
*Assoc. Program Director  
Boston Children's Hospital*



**Christine C. Cheston, MD**  
*Assoc. Program Director  
Boston Medical Center*



**Samuel E. Lux IV, MD**  
*Director of Intern Selection  
Boston Children's Hospital*



**Celeste R. Wilson, MD**  
*Assoc Chair, Intern Selection  
Boston Children's Hospital*



**Kenneth A. Michelson, MD**  
*Assoc Chair, Intern Selection  
Boston Children's Hospital*



**Colin M. Sox, MD, MS**  
*Chair, Intern Selection  
Boston Medical Center*



**Clare Bloomberg**  
*Program Coordinator  
Boston Children's Hospital*



**Elayne Fournier**  
*Program Coordinator  
Boston Children's Hospital*



**Susan Brooks**  
*Housestaff Coordinator  
Boston Children's Hospital*



**Kate Antanovich**  
*Program Coordinator  
Boston Medical Center*

# Interns and Residents

The Boston Combined Residency Program welcomes 47 new pediatric and 4 med-peds members of what promises to be one of the best classes in its history. The new interns come from 23 states and 15 countries, went to 37 different colleges and 33 different medical schools. They majored in nearly 34 diverse subjects including, in addition to a wide variety of biological sciences, anthropology, ecology, English, French, Latin American studies, global health, public policy, community health, international affairs, economics, political economy, chemical engineering, biomedical engineering, chemistry and mathematics. Twelve are PhDs or have PhD-like research experience, and four hold an MPH, MSc or MPhil. Nine of the new interns graduated from Harvard, three from Pennsylvania and Boston University, and two each came from Albert Einstein, Case Western Reserve, Johns Hopkins, Pennsylvania State, UCLA and Yale. Several schools, including Helsinki, Rutgers Robert Wood Johnson and Utrecht are new or relatively new to the BCRP.

## Interns (Categorical Track)



**Mohsin Ali, MD, MPhil**

- Lahore, Pakistan > Toronto, Canada
- McMaster (Health Sciences)
- Icahn School of Medicine at Mount Sinai
- MPhil, Univ. of Cambridge (Epidemiology and Biostatistics)



**Patrick Asselin, MD (Child Neurology)**

- Rochester, NY
- SUNY Genesco (Biology)
- Rochester Univ. School of Medicine and Dentistry



**Anna Bakas, MD**

- Carmel, IN
- Indiana Univ. (Human Biology)
- Indiana Univ. School of Medicine



**Meera Basu, MD (Child Neurology)**

- Wyoming, OH
- Washington Univ, St Louis (Neuroscience)
- Univ. of Cincinnati College of Medicine



**Wynne Callon, MD**

- Tokyo, Japan
- Princeton Univ. (Public Policy & International Affairs)
- Johns Hopkins Univ. School of Medicine



**Longyue (Lily) Cao, MD, PhD**

- China > Bethesda, MD
- Cornell Univ. (Biology)
- Albert Einstein College of Medicine
- PhD (Biomedical Sciences)



**Walter Chen, MD, PhD**

- New York City, NY
- Princeton (Biochemistry)
- Harvard Medical School
- PhD, Massachusetts Inst. of Technology (Biology)



**Stephen, Chrzanowski, MD, PhD (Child Neurology)**

- Cleveland, OH
- Cincinnati (Biomedical Engineering)
- Univ. of Florida College of Medicine
- PhD (Physiology and Functional Genomics)



**Margaret (Maggie) Cochran MD (Child Neurology)**

- Dedham, MA
- Harvard (Psychology)
- Harvard Medical School



**Bonnie McKee Crume, MD**

- Abilene, KS
- Washburn Univ (Biology)
- Univ of Kansas School of Medicine



**Alissa D'Gama, MD, PhD**

- North White Plains, NY > Tucson, AZ
- Harvard (Molecular & Cellular Biology)
- Harvard Medical School
- PhD (Biological and Biomedical Sciences)



**Michael Duyzend, MD, MPhil, PhD (Ped-Medical Genetics)**

- Seattle, WA
- Carleton (Chemistry & Mathematics)
- \* Univ. of Washington School of Medicine
- MPhil, Univ of Cambridge (Computational Biology)
- PhD (Genome Sciences)



**Elizabeth (Lizzie) Ernstberger, MD**

- Birmingham, AL
- Alabama - Tuscaloosa (Biochemistry & Public Health)
- Univ. of Alabama School of Medicine, Birmingham



**Frank Gonzalez, MD**

- Las Vegas, NV
- Univ. of Nevada, Reno (Biology)
- Harvard Medical School



**Rebecca (Becca) MacRae, MD**  
**(Child Neurology)**

- Sherborn, MA
- Massachusetts Inst. of Technology (Brain & Cognitive Sciences)
- Harvard Medical School



**Kelly McCullagh, MD**

- Pleasantville, NY
- Wellesley (English)
- Pennsylvania State Univ. College of Medicine



**Netanya (Tani) Pollock, MD**

- Wheeling, WV
- Columbia (Neuroscience & Behavior)
- Univ. of Pittsburgh School of Medicine



**Kelly Roelf, MD**

- Iowa City, IA
- Humbolt State (Cellular & Molecular Biology)
- Univ. of California, Los Angeles David Geffen School of Medicine



**Aaida Samad, MD**

- Fremont, CA
- Univ of California, Berkeley (Molecular & Cell Biology)
- Case Western Reserve Univ. School of Medicine



**Alexandra (Ally) Geanacopoulos, MD**

- Norfolk, MA
- Dartmouth (Biophysical Chemistry)
- Perelman School of Medicine at the Univ. of Pennsylvania



**Horace (Rhodes) Hambrick, MD**

- Georgetown, KY
- Furman (Biochemistry)
- New York Univ. School of Medicine



**Katherine (Katie) Marcus, MD**

- New Haven, CT
- Wesleyan (Neuroscience & Behavior)
- Johns Hopkins Univ. School of Medicine



**James Morrow, MD, PhD**

- Pittsburgh, PA
- Pennsylvania State (Biology)
- Case Western Reserve Univ. School of Medicine
- PhD (Pathology)



**Alireza (Ali) Raissadati, MD, PhD**

- Helsinki, Finland
- Univ of Helsinki Faculty of Medicine
- PhD (Biological and Environmental Sciences)
- PhD (Clinical Research)



**Robert (Bobby) Rosen, MD**

- New York City
- Univ. of California, Berkeley (Political Economy)
- Yale School of Medicine



**Sarah Schlegel, MD**

- Auburndale, MA
- Harvard (Organismal & Evolutionary Biology)
- Stanford Univ. School of Medicine



**Katia Genadry, MD**

- Paris, France > Beirut, Lebanon
- American Univ. of Beirut (Biology)
- American Univ. of Beirut Faculty of Medicine



**David Hoytema van Konijnenburg, MD, PhD**

- Naarden, Netherlands
- Univ Utrecht Faculty of Medicine
- PhD (Immunology)



**Gareth Marshall, MD**

- Boston, MA
- Washington Univ, St Louis (Anthropology)
- Boston Univ. School of Medicine



**Maria Niccum, MD, MSc**

- Cluj-Napoca, Romania > Eldersburg, MD
- Duke (Chemistry)
- Univ. of Virginia School of Medicine
- MSc (Pharmacology)



**Victoria Robson, MD**

- Cape Town, South Africa > Weston, MA
- Columbia (Neuroscience & Behavior)
- Harvard Medical School



**Jessica Ruiz, MD**

- Austin, TX
- Rice (Bioengineering)
- Harvard Medical School



**Lauren Sheidler, MD**

- Pennington, NJ
- Georgetown (Human Science)
- Rutgers Robert Wood Johnson Medical School





**Rachel Stadelmaier, MD**

- Midland, MI
- Michigan (Ecology & Evolutionary Biology)
- Albert Einstein College of Medicine



**Zachary (Zach) Winthrop, MD**

- Philadelphia, PA
- Lafayette (Biology)
- Pennsylvania State Univ. College of Medicine



**Benjamin (Ben) Zielonka, MD**

- Lower Merion, PA
- Washington Univ, St Louis (Latin American Studies)
- Perelman School of Medicine at the Univ. of Pennsylvania

## Interns (Urban Health and Advocacy Track)



**Beverly Aiyanyor, MD**

- Bronx, NY
- Pennsylvania (Health & Societies)
- Northwestern Univ., Feinberg School of Medicine



**Katelin Blackburn, MD**

- Buffalo, NY
- Boston Univ. (Human Physiology)
- Boston Univ. School of Medicine



**Lawrence Chang, MD**

- Taiwan > Irvine, CA
- Princeton (Chemical and Biological Engineering)
- Perelman School of Medicine at the Univ. of Pennsylvania



**Erin Elbel, MD**

- Albuquerque, NM > Bitburg, Germany
- Univ. Texas, Austin (Biology)
- Columbia Univ. College of Physicians and Surgeons



**Rohini Jain, MD**

- Fremont, CA
- Univ. of California, Los Angeles (Microbiology, Immunol & Mol Genetics)
- Univ. of California, Davis School of Medicine



**Colleen Kelly, MD**

- Western Springs, IL
- Notre Dame (Economics)
- Univ. of Chicago Pritzker School of Medicine



**Sagar Mehta, MD**

- Cherry Hill, NJ > Orlando, FL
- Duke (Public Policy & Global Health)
- Washington Univ, St Louis School of Medicine



**Nikita Saxena, MD**

- New Providence, NJ
- Tufts (Biomedical Engineering)
- Boston Univ. School of Medicine



**Kristan Scott, MD**

- Miami, FL
- Princeton (Molecular Biology)
- Harvard Medical School



**Nitin Shrivastava, MD, MPH**

- Dehradun, India > Singapore > Westborough, MA
- Tufts (Biochemistry & Community Health)
- Univ. of Massachusetts Medical School
- \* MPH (Health Management), Harvard School of Public Health



**Eliza Szuch, MD (Child Neurology)**

- Dover, MA
- Wake Forest (French)
- Wake Forest School of Medicine

## Interns (Medicine-Pediatrics Track, Year 1)



**Lao-Tzu (Lao) Allan-Blitz, MD**

- Santa Barbara, CA
- New York Univ, (Interdisciplinary Studies)
- Univ. California, Los Angeles School of Medicine



**Colin Martz, MD**

- Albuquerque, NM
- Duke (Neuroscience)
- Duke Univ. School of Medicine



**Ronnye Rutledge, MD, MHS**

- Fort Wayne, IN
- Harvard (Human & Evolutionary Biology)
- Yale Medical School
- MHS (Medicine)



**Yannis Valtis, MD**

- Thessaloniki, Greece
- Harvard (Human Development & Regenerative Biology)
- Harvard Medical School

## Junior Residents (Categorical Track)



**Kristie Aamodt, MD, PhD  
(Accelerated Res. Path.)**

- Harrisonburg, VA
- Brigham Young Univ. (Genetics & Biotechnology)
- Vanderbilt School of Medicine
- PhD (Molecular Physiology & Biophysics)



**Lukman Abdurrahim, MBBS**

- Jos, Nigeria
- Ahmadu Bello Univ.
- Pediatrics residency and chief resident, Hamad Medical Corp, Qatar
- Pediatric Infectious Diseases fellowship, Boston Medical Center



**Cynthia Akagbosu, MD, MMS**

- London, England → Tampa, FL
- Dartmouth College (Spanish and Psychology)
- Tufts Univ. School of Medicine
- MMS (Medical Science), Boston Univ.



**Faraz Alizadeh, MD**

- Oklahoma City, OK
- Univ. California, Los Angeles (Integrative Biology & Physiology)
- Albert Einstein College of Medicine



**Gina Aloisio, MD, PhD**

- Chillicothe, OH
- Ohio State Univ. (Spanish & Biomedical Sciences)
- Univ. Texas Southwestern School of Medicine
- PhD (Pathology)



**Daniel (Danny) Atwood, MD**

- Minnetonka, MN
- Univ. of Kentucky (Biology)
- Medical College of Wisconsin



**Christina (Chris) Briscoe-Abath, MD  
(Neurodevelopmental Disabilities)**

- Newport News, VA
- Univ. of Maryland (Public Health & Anthropology)
- Univ. of Virginia School of Medicine



**Amanda Bryson, MD**

- Medway, MA
- Univ. of Maryland (Biology & Spanish)
- Pennsylvania State Univ. College of Medicine



**Shannon Byler, MD**

- Calgary, AB, Canada
- Washington State (Biomedical Engineering & Mathematics)
- Boston University School of Medicine



**Hamsika Chandrasekar, MD**

- Sugarland, TX
- Massachusetts Institute of Technology (Brain & Cognitive Sci & Computer Science & Molecular Biol)
- Stanford Univ School of Medicine



**Anna Cushing, MD**

- Washington, DC
- Stanford Univ. (Biomedical Computation)
- Icahn School of Medicine at Mount Sinai



**Kelly Fitzgerald, MD**

- Sudbury, MA
- Harvard College (Neurobiology)
- Warren Alpert School of Medicine at Brown Univ.



**Caroline Gross, MD**

- Los Angeles, CA
- Cornell Univ. (Biology & Society)
- Univ. of California, Los Angeles School of Medicine



**John (Jack) Hale, MD  
(Pediatric Anesthesia)**

- Austin, TX
- United States Naval Academy (English)
- Univ. of Rochester School of Medicine



**Julia Hickey MD, CM  
(Pediatric Anesthesia)**

- Dover, MA
- Duke Univ. (French)
- McGill Univ. Faculty of Medicine



**Clara Hildebrandt, MD  
(Ped-Medical Genetics)**

- Freiberg, Germany → Ann Arbor, MI
- Univ. of Michigan (Neuroscience)
- Wayne State Univ. School of Medicine



**Rachel Goldstein Hirschberger, MD, MPH  
(Child Neurology - BCH)**

- Dix Hills, NY
- Brown Univ. (Public Policy & American Institutions)
- Boston Univ. Sch of Med
- MPH (Health Policy)



**Robert Hoffmann, MD**

- Nuremberg, Germany
- Ludwig Maximilians Univ. Munich Faculty of Medicine

## BOSTON COMBINED RESIDENCY PROGRAM



**Alexander (Alex) Holtz, MD, PhD  
(Ped-Medical Genetics)**

- Fairfield, CT
- Cornell Univ. (Biology)
- Univ. of Michigan School of Medicine
- PhD (Cell Dev Biology)



**Hadas Ityel, MD**

- Tel Aviv, Israel
- Tel Aviv Univ (Life Sciences Honors Prog.)
- Sackler School of Medicine, Tel Aviv Univ.



**Shawn Jackson, MD, PhD  
(Pediatric Anesthesia)**

- Tucson, AZ
- University of Arizona (Cellular & Molec Biology and Political Science)
- University of Wisconsin School of Medicine
- PhD (Cell & Molec Biol)



**Divya Jayaraman, MD, PhD  
(Child Neurology - BCH)**

- Mumbai, India → Cos Cob, CT
- Harvard College (Biochemical Sciences)
- Harvard Medical School
- PhD (Neuroscience)



**Jenna Katz, MD**

- Plainview, NY
- Univ of Pennsylvania (Biol Basis of Behavior)
- Stanford Univ. School of Medicine



**Kailyn Kuzmuk, MD**

- Tinley Park, IL
- Harvard College (Psychology)
- Tufts Univ. School of Medicine



**Jia Liu, MD  
(Pediatric Anesthesia)**

- China → Charlottesville, VA
- University of Virginia (Biology)
- Yale University School of Medicine



**Matthew (Matt) Luchette, MD**

- Burr Ridge, IL
- Massachusetts Institute of Technology (Biological Engineering)
- Boston Univ, School of Medicine



**Amanda Marinoff, MD**

- Plainview, NY
- Dartmouth College (Neuroscience)
- Harvard Medical School



**Mariana Marques, MD**

- Brazilia, Brazil
- University of Brazilia
- Pediatric residency at Univ. of São Paulo



**Caitlin Milligan, MD, PhD**

- Lexington, KY
- Duke Univ. (Biology & Global Health)
- Univ. of Washington School of Medicine
- PhD (Pathobiology)



**Alisa Mo, MD, PhD  
(Child Neurology - BCH)**

- Plano, TX
- Cornell Univ. (Biology & Mathematics)
- Johns Hopkins Univ. School of Medicine
- PhD (Neuroscience)



**Megan Mohnen, MD  
(Pediatric Anesthesia)**

- Clintonville, WI
- Marquette Univ. (Biology)
- Medical College of Wisconsin



**Carolina Montaña, MD, PhD**

- Barranquilla, Colombia → Miami, FL
- Brigham Young Univ. (Neuroscience & Molecular Biology)
- Johns Hopkins Univ. School of Medicine
- PhD (Genetics)



**Sinead Murphy, MD**

- Rochester, MN
- Amherst College (History & Chemistry)
- Mayo Medical School



**Chloë Nunneley, MD  
(Child Neurology - BCH)**

- Buffalo, NY → New Zealand → College Station, TX
- Texas A&M (Biochemistry)
- Baylor College of Medicine



**Amy O'Brien, MD  
(Pediatric Anesthesia)**

- Dublin, Ireland → San Diego, CA
- Brown Univ. (Immunology)
- Harvard Medical School



**Milad Rezvani, MD, Dr med  
(Accelerated Res. Path.)**

- Hannover, Germany
- Albert Ludwigs Univ. Freiburg Germany Medical School
- Dr med (Genetics/ Neonatology)



## BOSTON COMBINED RESIDENCY PROGRAM



**Anna Sheridan, MD**  
(Pediatric Anesthesia)  
• Lexington, MA  
• Rensselaer Polytechnic Institute (Biology)  
• Albany Medical College



**Caroline Smith, MD**  
• Dallas, TX  
• Stanford Univ. (Biology)  
• Univ. of Texas Southwestern School of Medicine



**Supriya Suresh, MBBS**  
• Devangere, India  
• JSS Medical College, Mysore, India  
• Pediatric residency, Govt Medical College of Surat, Gujarat, India,



**Christina Theodoris, MD, PhD**  
(Ped-Medical Genetics)  
• Alpharetta, GA  
• California Institute of Technology (Biology)  
• Univ of California, San Francisco  
• PhD (Dev Stem Cell Biol)



**Michaela Tracy, MD**  
• Needham, MA  
• Georgetown Univ. (Biology & Psychology)  
• Univ. of Massachusetts School of Medicine



**David (Dave) Vanderhoff, MD**  
• Stow, MA  
• Dartmouth College (Government & Environmental Studies)  
• Univ of Washington School of Medicine



**Kimiko (Kimi) Warlaumont, MD**  
• Mt Kisko, NY  
• College of William & Mary (Neuroscience & Studio Art)  
• Univ of Michigan School of Medicine



**Mollie Wasserman, MD**  
• St Louis, MO  
• Washington Univ., St Louis (Biology)  
• Univ of Missouri-Columbia School of Medicine



**Yasmine White, MD**  
(Accelerated Res. Path)  
• Arcata, CA  
• Bowdoin College (Mathematics & Biology)  
• Univ. of Michigan School of Medicine  
• General Surgery Residency (1 yr), Stanford Univ.



**Christina Williams, MD**  
(Pediatric-Anesthesia)  
• St Louis, MO  
• Washington Univ St Louis (Spanish & Anthropology)  
• Stanford Univ School of Medicine

## Junior Residents (Urban Health and Advocacy Track)



**Brenna (Hughes) Chase, MD**  
• Boston, MA  
• Dartmouth College (Economics & Environmental Studies)  
• Univ. of Chicago Pritzker School of Medicine



**Suzanne Collier, MD**  
• Potomac, MD  
• Colgate Univ. (Psychology)  
• Univ. of Michigan School of Medicine



**Cody-Aaron (Cody) Gathers, MD**  
• Goose Creek, SC  
• Clemson Univ. (Biochemistry)  
• Medical Univ. of South Carolina



**Genevieve (Gen) Guyol, MD**  
• St Louis, MO  
• Middlebury College (Spanish & History)  
• Boston Univ. School of Medicine



**Jeremiah Joyce, MD**  
• Jackson, MI  
• Vassar College (German & Film Studies)  
• Stony Brook Univ. School of Medicine



**Perry Nagin, MD, MEd**  
• Manhattan, NY  
• Princeton Univ. (Sociology)  
• MEd, Hunter College  
• Sidney Kimmel Medical College at Thomas Jefferson Univ.



**Alexandra (Alex) PowerHays, MD**  
• Tallahassee, FL  
• Emory Univ. (Biology)  
• Harvard Medical School



**Tyler (Tye) Rainer, MD**  
• Marlborough, MA  
• Williams College (Psychology)  
• Lewis Katz School of Medicine at Temple Univ.



**Lauren Sweetser, MD, MMS**  
• Holliston, MA  
• Middlebury College (French & Biology)  
• Boston Univ. School of Medicine  
• MMS (Medical Science)

## BOSTON COMBINED RESIDENCY PROGRAM



**Elizabeth (Lizzy) Wilson, MD**  
**(Child Neurology - BMC)**

- Berkeley Heights, NJ
- Lafayette College (Neuroscience)
- Boston Univ. School of Medicine



**Daniel (Dan) Zheng, MD, MHS**

- Barrington, RI
- Yale Univ (Psychology)
- Yale School of Medicine
- MHS (Health Science)

### Junior Residents (Medicine-Pediatrics Track, Year 2)



**Mariel Bailey, MD, MEd**

- Newport, RI
- Stanford Univ. (Human Biology)
- Univ. of California, Los Angeles
- MEd, Lehman College



**Neha Limaye, MD**

- Westfield, NJ
- Duke University (Global Disease Control)
- Perelman School of Medicine at the Univ of Pennsylvania



**Ian McConnell, MD**

- Boothbay, ME
- Harvard College (Government)
- Yale Medical School



**Emily Murphy, MD**

- Beverly, MA
- Brown Univ. (Neuroscience)
- Johns Hopkins Univ. School of Medicine

### Junior Residents (Medicine-Pediatrics Track, Year 3)



**Peter Dunbar, MD**

- Oxford, MS
- Princeton Univ. (Chemistry)
- Univ. of Pennsylvania School of Medicine



**Erica Pimenta, MD, PhD**

- Rahway, NJ
- Rutgers Univ. (Molecular Biology and Biochemistry)
- Rutgers Univ. New Jersey School of Medicine
- PhD (Biochemistry)



**Jennifer (Jenna) Schulte, MD**

- Burr Ridge, IL
- Univ. of Notre Dame (Anthropology)
- Chicago Univ. School of Medicine



**Stephen Tsaur, MD**

- Lexington, MA
- Carnegie Mellon Univ. (Chemical and Biomedical Engineering)
- Univ. of Pennsylvania School of Medicine

### Senior Residents (Categorical Track)



**Geetha Bhagavatula, MD**

- Corning, NY
- St Bonaventure (Biology & Business)
- George Washington Univ. School of Medicine



**Philip Boone, MD, PhD (Medical Genetics)**

- Chesterfield, MO
- Virginia → Stanford (Biological Sciences)
- Baylor College of Medicine
- PhD (Genetics)



**Emily Cross, MD**

- New York, NY
- Harvard College (Biology)
- Univ. of Pennsylvania School of Medicine

## BOSTON COMBINED RESIDENCY PROGRAM



**Lindsey Gaston, MD**

- Detroit, MI
- Kalamazoo College (Biology)
- Univ. of Michigan School of Medicine



**Andrew Groves, MD**

- Ann Arbor, MI
- Northwestern Univ. (Integrated Sciences, Chemistry & Mathematics)
- Washington Univ in St Louis School of Medicine



**Connor Hall, MD, PhD**

- Walnut Creek, CA
- Univ. of Southern California (Biomedical Engineering)
- Texas Tech Univ. School of Medicine, Lubbock
- PhD (Pharmacology)



**Caitlyn Williams Hark, MD**

- Larchmont, NY
- Hamilton College (Neuroscience)
- Albert Einstein College of Medicine



**Margaret (Molly) Lewen, MD**

- Ridgefield, CT
- Williams College (English & Psychology)
- Univ. of Pennsylvania School of Medicine



**Adrienne Long, MD, PhD (Integrated Res. Path.)**

- Damascus, MD
- Northwestern Univ. (Biomedical Engineering)
- Northwestern Univ. School of Medicine
- PhD Northwestern & NIH (Microbiol & Immunology)



**Caitriona McGovern, MD**

- Winchester, MA
- Harvard College (Global Health Policy)
- Harvard Medical School



**Erin Meyer, MD**

- Columbia, MO
- Washington Univ. in St Louis (Philosophy, Neuroscience & Psychology)
- Case Western Univ. School of Medicine



**Melissa Musser, MD, PhD (Integrated Res. Path.)**

- Amarillo, TX
- Univ. of Oklahoma (Cello & Zoology)
- Vanderbilt Univ. School of Medicine
- PhD (Human Genetics)



**Conor O'Halloran, MD**

- Chicago, IL
- Univ. of Wisconsin-Madison (Biology)
- Univ. of Wisconsin School of Medicine



**Jordan Roberts, MD**

- San Luis Obispo, CA
- Harvard College (Government)
- Cornell Medical College



**Matthew (Matt) Rowland, MD (Pediatric Anesthesia)**

- St Charles, IL
- Michigan (Microbiology)
- Northwestern University, Feinberg School of Medicine



**Jessica Sanchez, MD**

- Phoenix, AZ
- Univ. of Arizona (Physiology)
- Univ of Arizona School of Medicine
- Pediatric Residency (1 yr), Connecticut Children's



**Michael (Mike) Stratton, MD, MMS**

- Newton, MA
- Bowdoin College (Biology)
- Boston Univ. School of Medicine
- MMS (Medical Science)



**Kate Templeton, MD**

- Santa Monica, CA
- Providence College (Biology)
- Pennsylvania State Univ. School of Medicine



**Maria Trissal, MD, PhD (Integrated Res. Path.)**

- S. Korea → Phoenix, AZ
- Univ. of Arizona (Biochemistry and Molec Biophysics & Molecular and Cellular Biology)
- Washington Univ in St Louis School of Medicine
- PhD (Immunology)



**Ashley Davidson Turner, MD**

- Joplin, MO
- Univ. of Missouri-Columbia (Biochemistry and Nutrition)
- Univ. of Missouri School of Medicine



**Franziska (Franzi) Wachter, MD (Integrated Res. Path.)**

- Hof, Germany
- Ludwig Maximilian Univ. Munich Faculty of Medicine



## BOSTON COMBINED RESIDENCY PROGRAM



**Nina Weichert-Leahey, MD**

- Heidelberg, Germany
- Ludwig Maximilians Univ. Faculty of Medicine.
- Pediatric Residency (3.5 yrs), Charité Hospital, Berlin



**Stephan Wu, MD**

- Montreal, Canada → Carlisle, MA
- Univ of Pennsylvania (Biochemistry & Economics)
- Univ of Pennsylvania School of Medicine



**James Xie, MD**

- (Pediatric Anesthesia)**
- Switzerland → England → Burlingame, CA
  - Stanford (Computer Science)
  - Stanford University School of Medicine



**Julia Whitlow Yarahuan, MD**

- Arlington, TX
- Univ. Texas-Austin (Business Honors Program & Management Information Systems)
- Baylor College of Medicine



**Salim Zerriny, MD**

- Tyngsboro, MA
- Univ. Massachusetts-Amherst (Kinesiology)
- Univ. of Massachusetts School of Medicine

## Senior Residents (Urban Health and Advocacy Track)



**Hannah Barber-Doucet, MD, MPH**

- Brooklyn, NY
- Wesleyan Univ. (Biology & Feminist, Gender and Sexuality Studies)
- SUNY Downstate School of Medicine
- MPH (Public Health)



**Jeffrey (Jeff) Campbell, MD**

- Boulder, CO
- Princeton (Art History & Materials Science and Engineering)
- Harvard Medical School



**Beatriz (Betty) Collada, MD**

- Cuba → Miami, FL
- Duke Univ. (Biology)
- Florida International Univ. College of Medicine



**Kelsey Egan, MD**

- Rochester, NY
- Cornell Univ. (Human Biology, Health & Society)
- Columbia Univ. College of Physicians and Surgeons



**Yuan He, MD, MPH**

- Tempe, AZ
- Yale Univ. (Molecular Biochemistry & Biophysics)
- University of Arizona College of Medicine
- MPH (Public Health)



**Sara Holmstrom, MD**

- St. Charles, IL
- Univ. Wisconsin-Madison (Biology)
- Boston Univ. School of Medicine



**Avital Ludomirsky, MD, MPP**

- Ann Arbor, MI → St Louis, MO
- Princeton Univ. (Public and International Affairs)
- New York Univ. School of Medicine
- MPP, Princeton (Public and International Affairs)



**Daria Murosko, MD, MPH**

- Columbia, MD
- Univ. of Maryland (Biochemistry)
- Univ. of Pennsylvania School of Medicine
- MPH (Public Health)



**Daniel (Dan) Shapiro, MD**

- New Haven, CT
- Stanford Univ. (Economics)
- Univ. California, San Francisco School of Medicine



**Arielle Spellun, MD**

- Warwick, RI
- Univ. of Pennsylvania (Biology)
- Thomas Jefferson Univ. School of Medicine



**Destiny Tolliver, MD**

- Albany, GA
- Yale University (Linguistics)
- Morehouse School of Medicine

## Senior Residents (Medicine-Pediatrics Track, Year 4)



**Charles (Nick) Cuneo, MD**

- Weston, MA
- Duke University (Evolutionary Anthropology and Biology)
- Johns Hopkins University School of Medicine



**Ross England, MD, PhD**

- Lancaster, PA
- Pennsylvania State University (Biology)
- Temple University School of Medicine
- PhD (Molecular & Cellular Physiology)



**Brian Hasselfeld, MD  
(Med-Peds Chief Resident)**

- Chesterfield, MO
- Vanderbilt University (Mathematics, Computer Science and Economics)
- Tulane University School of Medicine



**Mariya Kalashnikova, MD**

- Kiev, Ukraine → Mountain View, CA
- Stanford University (Human Biology)
- University of Southern Calif School of Medicine

## Senior Residents (Medicine-Pediatrics Track, Year 5)



**Anne Beckett, MD  
(Global Health Resident)**

- Phoenix, AZ
- Harvard College (Social Studies)
- Yale University School of Medicine

## Chief Residents (Boston Children's Hospital)



**Shyam Deshpande, MD**

- Baltimore, MD
- Grinnell College (Chemistry)
- Vanderbilt University School of Medicine



**Eli Freiman, MD**

- Washington, DC → Wellesley, MA
- Duke University (Evolutionary Anthropol)
- University of Massachusetts School of Medicine



**Amanda Gomez, MD,  
MPH**

- Ann Arbor, MI
- University of Michigan (Biochemistry and Spanish)
- Columbia Univ College of Physicians & Surgeons
- MPH (Epidemiology)

## Chief Residents (Boston Medical Center)



**Laura Chiel, MD**

- Newton, MA
- University of Pennsylvania (Biology)
- Harvard Medical School



**Katherine (Katie) Nash,  
MD**

- New York, NY
- Dartmouth (History)
- Columbia University College of Physicians & Surgeons

# Boston Children's Hospital Department of Medicine

## Organization and Faculty Leadership

### Gary R. Fleisher, MD

Physician-in-Chief and Chair of Medicine  
Boston Children's Hospital

### Frederick H. Lovejoy Jr., MD

Vice Chair for Academic Affairs and Associate Physician-in-Chief

### Joseph A. Majzoub, MD

Vice Chair for Research and Director of Intern Selection

### Vincent W. Chiang, MD

Vice Chair for Finance

### Theodore C. Sectish, MD

Vice Chair for Education and Residency Program Director

### Alan M. Leichtner, MD

Vice Chair for Clinical Services

### Jonathan A. Finkelstein, MD

Vice-Chair for Quality and Outcomes

### Samuel E. Lux IV, MD

Director of Intern Selection

### Ronald C. Samuels, MD

Associate Program Director for Residency Training

### Carolyn H. Marcus, MD

Associate Program Director for Residency Training

### Shyam Deshpande, MD

Chief Resident

### Thomas J. Sandora, MD

Associate Program Director for Residency Training

### Ariel S. Winn, MD

Associate Program Director for Residency Training

### Eli Freiman, MD

Chief Resident

### Amanda Gomez, MD

Chief Resident

## Divisions and Programs

### Adolescent Medicine

#### Clinical Translational Study Unit

### Developmental Medicine

- ASAP (Adol Substance Abuse Prog)

### Emergency Medicine

- Clinical Emergency
- Clinical Toxicology (Poison Center)

### Endocrinology

- Clinical Endocrinology
- Diabetes Program
- Neuroendocrinology

### Gastroenterology and Nutrition

- Clinical Gastroenterology
- Clinical Nutrition

### General Pediatrics

- Children's Hospital Inpatient Service
- CHPCC (Primary Care)
- Clinical Effectiveness
- Coordinated Care Service
- Environmental Medicine
- Family Develop't Unit (Child Abuse)
- Martha Eliot Health Center

### Genetics & Genomics

- Clinical Genetics
- Metabolism

### S. Jean Emans, MD

### David A. Williams, MD

### William J. Barbaresi, MD

Sharon J. Levy, MD

### Richard G. Bachur, MD

Anne M. Stack, MD  
Michele M. Burns, MD

### Joel N. Hirschhorn, MD, PhD

Laurie E. Cohen, MD  
Joseph I. Wolfsdorf, MB, BCh  
Laurie E. Cohen, MD

### Wayne Lencer, MD

Athos Bousvaros, MD  
Christopher P. Duggan, MD,  
MPH

### Joanne Cox, MD, Acting Chief

Vincent W. Chiang, MD  
Joanne E. Cox, MD  
Jonathan A. Finkelstein, MD  
Sangeeta Mauskar, MBBS  
Alan D. Woolf, MD, MPH  
Celeste R. Wilson, MD  
Alex Epee-Bounya, MD  
**Christopher A. Walsh, MD**  
Olaf Bodamer, MD, PhD  
Gerard T. Berry, MD

### Hematology/Oncology

- Clinical Hematology
- Stem Cell Transplantation

### Immunology

- Allergy
- Dermatology
- Immunology
- Clinical Rheumatology

### Infectious Diseases

- Clinical Infectious Diseases

### Interdepartmental Programs

- Bioinformatics
- Cellular and Molecular Medicine
- Stem Cell Biology

### Medicine Critical Care

### Molecular Medicine

### Neonatology

- at Boston Children's Hospital
- at Beth Israel Deaconess Hospital
- at Brigham and Women's Hospital

### Nephrology

- Clinical Nephrology

### Pulmonary Medicine

- Clinical Pulmonology
- Ina Sue Perlmutter Laboratory

### David A. Williams, MD

Matthew M. Heeney, MD

Leslie Lehman, MD

### Raif S. Geha, MD

Hans C. Oettgen, MD, PhD

Stephen E. Gellis, MD

Hans C. Oettgen, MD, PhD

Mary Beth Son, MD

### Michael Wessels, MD

Tanvi Sharma, MD

Kenneth D. Mandl, MD

Frederick W. Alt, PhD

Leonard I. Zon, MD

### Michael S. D. Agus, MD

### Stephen C. Harrison, PhD

### Stella Kourembanas, MD

Anne R. Hansen, MD

DeWayne M. Pursley, MD

Terrie E. Inder, MD, MB ChB

### Friedhelm Hildebrandt, MD

Michael J. Somers, MD

### Benjamin A. Raby, MD, MPH

Debra Boyer, MD

Norma Gerard, PhD



# Boston Medical Center Department of Pediatrics

## Organization and Faculty Leadership

**Robert J. Vinci, MD**

Chief of Pediatrics, Boston Medical Center

Chair, Department of Pediatrics, Boston University School of Medicine

**John S. (Jack) Maypole, MD**

Vice Chair for Population Health and Practice Transformation

**Michael Silverstein, MD, MPH**

Vice Chair of Research

**Sharon E. O'Brien, MD**

Vice Chair for Acute Care and Subspecialty Services

**Catherine D. Michelson, MD, MMSc**

Residency Program Director

**Scott E. Hadland, MD, MPH**

Associate Program Director

**Laura E. Chiel, MD**

Chief Resident

**Christine C. Cheston, MD**

Associate Program Director

**Katherine A. Nash, MD**

Chief Resident

### Divisions and Programs

#### Ambulatory Service

- Adolescent Medicine
- Continuity Care Clinic
- Lead Clinic
- Pediatric Primary Care
- Substance Abuse Program
- Transgender Program

#### Behavioral Health

#### Cardiology

#### Children's Services

- Inpatient Pediatric Unit
- Neonatal Intensive Care Unit
- Normal Newborn Nursery
- Pain Program
- Pediatric Intensive Care Unit

#### Child Protection Program

#### Community Pediatrics

#### Developmental and Behavioral Peds

- Child Witness to Violence Program
- Comprehensive Care Program
- Developmental Assessment Clinic
- Good Grief Program
- Grow Clinic
- Primary Care Enrichment Program
- Reach Out and Read
- School Achievement Clinic

**Eileen Costello, MD**

Julie Potter, MD, MPH

Melissa Nass, MD

Sean Palfrey, MD

Eileen Costello, MD

Sara Bagley, MD

Mandy Coles, MD, MPH

**Lisa Fortuna, MD**

**Sharon O'Brien, MD**

**Jack Maypole, MD and Sharon O'Brien, MD**

Elizabeth Hutton, MD

Alan Fujii, MD

Bobbi Philipp, MD

Caitlin Neri, MD

Kate Madden, MD

**Kim Schwartz MD, MPH**

**Mary Ellen Stolecki, PNP**

**Marilyn Augustyn, MD**

Neena McConnico, PhD

Jack Maypole, MD

Marilyn Augustyn, MD

Maureen Patterson, MSW, LICSW

Deborah Frank, MD

Deborah Frank, MD

Eileen Costello, MD

Naomi Steiner, MD

#### Emergency Medicine

- Clinical Simulation

#### Endocrinology

#### Gastroenterology and Nutrition

#### General Pediatrics

- Academic Fellowship
- Center for the Urban Child

#### Genetics

#### Health Leads

#### Hematology/Oncology

#### Infectious Diseases

- HIV Program
- Refugee Health

#### Medical Student Teaching

#### Neurology

- Neuroepilepsy Program
- Neurophysiology Program

#### Neurosurgery

#### Ophthalmology

#### Orthopedics

#### Otolaryngology

#### Pediatric Surgery

#### Pediatrics Weight Management Program

#### Pulmonary Medicine

#### Rheumatology

**David H. Dorfman, MD**

Tehnaz P. Boyle, MD, PhD

**Suleiman Mustafa-Kutana, MD**

**Claudio Morera, MD**

**Michael Silverstein, MD**

Caroline Kistin, MD MSc

Megan Bair Merritt, MD MPH

**Jodi Hoffman, MD**

**Jessie Odegard, MSW**

**Amy Sobota, MD**

**Elizabeth Barnett, MD**

Ellen Cooper, MD

Elizabeth Barnett, MD

**Rachel Thompson, MD**

**Laurie Douglas, MD**

Mandeep Rana, MD

Rinat Jones, MD, PhD

**James Holsapple, MD**

**Steven Christiansen, MD**

**T. Desmond Brown, MD**

**Jessica Levi, MD**

**Catherine Chen, M.D**

**Carine Lenders, MD**

**Robyn Cohen, MD, MPH**

**Ezra Cohen, MD**

# Facilities



*Children's Hospital Main Building front entrance*

## Statistics

- 404 beds (~50% medical)
  - ▷ 29 bed multidisciplinary ICU
  - ▷ 29 bed cardiac ICU
  - ▷ 24 bed neonatal ICU
  - ▷ 16 bed medicine ICU
  - ▷ 12 bed intermediate care ICU
  - ▷ 13 bed stem cell transplantation unit
  - ▷ 6 bed clinical research center
- 25,000 inpatient admissions
- 26,500 surgical procedures
  - ▷ 2,000 cardiac cath procedures
- 610,000 outpatient visits
  - ▷ 258 specialized clinical programs
  - ▷ 60,000 emergency department visits
- 1,129 active medical and dental staff
- 1,250 adjunct, affiliated and scientific staff
- 2,100 nurses
- 34 languages spoken by patients

## Boston Children's Hospital

Boston Children's Hospital is one of the largest pediatric hospitals in the United States, and a major teaching facility of Harvard Medical School. Founded in 1869 as a 20-bed hospital for children, it is now a comprehensive medical center for pediatric and adolescent health care, dedicated to excellence in patient care, teaching and research.

There are 404 inpatient beds distributed on five floors in the Main hospital building, Main South, and the new state-of-the-art Mandell building. The hospital contains a 29-bed multidisciplinary intensive care unit, 16-bed medical intensive care unit, 24-bed neonatal intensive care unit, 26-bed cardiac intensive care unit, 12-bed intermediate care unit, 13-bed bone marrow transplantation unit and six-bed clinical research center (called the Institutional Centers for Clinical and Translational Research at Children's). Children's has physician services agreements for inpatient pediatrics, emergency medicine and/or newborn medicine at Beverly Hospital, Charlton Memorial Hospital, Milford Hospital, St Luke's Hospital, South Shore Hospital, Tobey Hospital and Winchester Hospital.

There are more than 100 outpatient programs ranging from primary care to a wide variety of specialty programs.

Outpatient facilities include an 11-story building for ambulatory services, the Adolescent/Young Adult Program, Children's Hospital Primary Care at Longwood, and Martha Eliot Health Center, an affiliated neighborhood health center. In addition, outpatient services are provided at Children's satellite centers or physician offices in Brockton, Lexington, Milford, North Dartmouth, Peabody, Waltham, Weymouth and Worcester Massachusetts.



*The green-domed Hunnewell building is the architectural signature of Boston Children's*

## BOSTON COMBINED RESIDENCY PROGRAM

### Hunnewell Building

This famous "green-domed" building with its classic columned facade on Longwood Ave was built in 1914 and is the oldest building in the Children's complex. To many it is the symbol of the institution. Today, it mostly houses administrative offices, including the Dept. of Medicine, offices, which are located on the 2nd floor. The copper dome covers an internal atrium. It was reclad about 20 years ago and is only beginning to recover its verdigris hue.

### Main South

Children's opened this 11-story clinical building in 2005. An extension of the hospital's existing Main Building, Main South gives clinicians access to cutting-edge technology while carving out more room for patients and families. The building includes cardiac, medical and multidisciplinary ICU beds, a medical intermediate care unit, a cardiac catheterization lab, inpatient echocardiography, medical and surgical patient beds, operating rooms, interventional radiology space and administrative office space.



**Main South building**

### Fegan Building

This 12 story building sits in the middle of the Children's campus, between the Hunnewell building and the Main Hospital, and houses Children's ambulatory programs and many clinician's offices.

### Enders and Karp Research Laboratories

The 13-story John F. Enders Laboratories for Pediatric Research, named for the Nobel Prize recipient who cultured the polio and measles viruses; the 12-story state-of-the art Karp Family Research Laboratories; and a portion of the neighboring Center for Life Science Boston, add up to more than 750,000 square feet of research space. These buildings contain basic scientists and physician investigators in virtually every specialty, more than 1,100 in all. The hospital faculty includes 8 members of the National Academy of Sciences, 20 members of the National Academy of Medicine, 23 Fellows of the American Academy of Arts and Sciences, and 11 members of the Howard Hughes Medical Institute and a level of research that rivals the very best research



**Enders Research Laboratories**



**Karp Building**

institutes in the world. Funding for research at Boston Children's Hospital exceeds \$300 million and is greater than all other pediatric hospitals in the United States.

Boston Children's Hospital is also a leader in clinical research and has recently doubled clinical research space with the acquisition of a new building near the hospital. The clinical research program has extensive support services, including biostatisticians, epidemiologists, database programmers, data coordinators and clinical research coordinators who provide consultation to clinical investigators. The hospital also has one of the oldest and largest NIH-funded clinical research centers (called the Institutional Centers for Clinical and Translational Research at Children's) in the country.

### Mandell Building

This 10-story state-of-the-art clinical building opened in 2013. It contains much needed expansion space for the Emergency, Radiology, Surgery, Neurology, and Pharmacy services. There are four floors of single bed inpatient rooms that align with floors in the existing hospital, new 'short stay beds', and a neuroimaging suite with additional MRI, magnetoencephalography, functional MRI, and near infrared imaging tools.



**Mandell Building**



## Harvard Medical School and the Longwood Medical Area



***The central Quad of Harvard Medical School. Children's Hospital is next to the buildings on the right.***

Boston Children's Hospital is the primary pediatric program of Harvard Medical School, which is located next to the hospital. All faculty hold academic appointments at the medical school. There are more than 3000 Harvard Medical School faculty affiliated with Boston Children's Hospital.

Children's Hospital and Harvard Medical School are part of a larger, roughly 20 square block campus called the Longwood Medical Area. Children's sits in the center of this area, next to the Brigham and Women's Hospital, Beth Israel Deaconess Medical Center and the Dana-Farber Cancer Institute, as well as Harvard Medical School, and within a block of the Joslin Diabetes Center, the Massachusetts College of Pharmacy, the Harvard School of Public Health, and the Harvard School of Dental Medicine. Some members of the staff are also staff members at one of these neighboring institutions.

Boston Children's Hospital participates in numerous cooperative programs. It is a partner in Neonatology with Brigham and Women's Hospital and Beth Israel Deaconess Medical Center. It is the headquarters of the New England Regional Infant Cardiac Program, the site of the Massachusetts Poison Control System, a partner in the Dana-Farber/Boston Children's Cancer and Blood Disorders Center with Dana-Farber Cancer Institute and a partner in the Joint Program in Gastroenterology and Nutrition with Massachusetts General Hospital across town. Several surgical departments are joint programs with the Brigham and Women's Hospital.



***Children's lies at the center of the Longwood Medical Community***

### Boston Medical Center



***Boston Medical Center main entrance***

In July 1996, Boston City Hospital, Boston Specialty and Rehabilitation Hospital, and Boston University Medical Center merged to form Boston Medical Center (BMC). Through its partnership with Boston University School of Medicine and Boston Health Net neighborhood health centers, BMC continues the mission set forth by Boston City Hospital more than 125 years ago--to provide medical care to the residents of Boston. Last year, the Department of Pediatrics at BMC provided care to more than 2,000 pediatric inpatients, 63,000 outpatients, and 24,000 patients in the emergency department. The neighborhood health centers, which provide continuity clinic sites for house officer training, contribute an additional 110,000 ambulatory visits each year to the program. Boston Health Net reflects our commitment to Community Care by combining BMC with 13 community based health centers into an integrated service delivery network, and starting in March 2018 BMC joined as a leader in the Boston Accountable Care Organization (BACO).

#### **Inpatient and Outpatient Facilities**

This building opened in January 1994. There is a 22-bed pediatric unit, a six-bed pediatric intensive care unit, a 30-bed normal newborn nursery, and a brand new, state-of-the-art 21-bed level III neonatal intensive care unit with single rooms for newborns and mothers that opened in January 2016. There are approximately 2,850 deliveries each year, 40 percent of which are high risk. There are 25 outpatient programs including primary care, adolescent medicine, pediatric cardiology, pulmonology, gastroenterology, allergy and immunology, rheumatology, nutrition, developmental behavioral pediatrics, genetics

#### **Statistics**

- 493 total beds
  - ▷ 22 pediatric inpatient beds
  - ▷ 30 bed newborn nursery
  - ▷ 21 bed neonatal ICU
  - ▷ 6 bed pediatric ICU
- 2,000 inpatient admissions
- 2,850 deliveries
- 63,000 outpatient visits
- 24,000 emergency department visits

and a variety of specialty programs, many of which are directed towards health care issues of urban children due to poverty.

#### **Maxwell Finland Laboratory**

The Maxwell Finland Laboratory for Infectious Diseases, named for the world-renowned investigator of bacterial diseases and antibiotics, houses the laboratories of the divisions of pediatric infectious diseases, immunology, pulmonary, and molecular biology. Research in these laboratories focuses on problems of urban children.

#### **Shapiro Ambulatory Care Building**

In April 2011 BMC hosted the grand opening of the Carl J. and Ruth Shapiro Ambulatory Care Center, the hospital's new state-of-the-art facility for outpatient services. The 250,000 square foot, nine-story building allows consolida-



***Shapiro Ambulatory Care Building***



## BOSTON COMBINED RESIDENCY PROGRAM



***Yawkey Ambulatory Care Center***



***Isadore Talbot Building***

tion of clinical programs and a standard of care delivery that maximizes patient comfort and operation efficiency.

### **Yawkey Ambulatory Care Center**

Home to all Ambulatory Care Programs at BMC, the Pediatric Department Programs are located on the fifth floor of the Yawkey Ambulatory Care Center Building. Residents who select BMC as their continuity practice site will be based here at BMC. The Department of Pediatrics provides extensive services to its patients in this ambulatory site, including a food pantry, clinic-based literacy program (Reach Out and Read) and specialized Health Services screening for our patients and their families (Project Health Help Desk).

### **Isadore Talbot Building**

The Talbot Building demonstrates the beautiful architecture of turn-of-the-century Boston. It was the original site of the Massachusetts Memorial Hospital (predecessor to BMC) and is now renovated on the BMC campus and is the site of the Boston University School of Public Health.

### **Moakley Cancer Care Building**

With the November 2006 opening of the Moakley Building, Boston Medical Center had reached its goal of providing a best-in-class, centralized cancer and



***Moakley Building***

ambulatory care facility that embodied the commitment to provide exceptional care. Named in honor of the late Congressman John Joseph Moakley, a devoted champion of BMC, the building was designed to streamline care by consolidating the diagnostic and cancer treatments that were scattered across the 16-square-block Medical Campus. The latest equipment and technology supplement the services offered, including the diagnosis and treatment of cancer and digestive and otolaryngology disorders, a breast health center, and an ambulatory surgery center.



### Boston University School of Medicine

Boston University School of Medicine (BUSM) is located in the historic South End of Boston and shares a campus with Boston Medical Center Hospital, the School of Public Health, the Goldman School of Dental Medicine, the Solomon Carter Fuller Mental Health Center, and the Boston Public Health Commission. This campus hosts approximately 700 medical students, along with 550 School of Public Health students, and nearly 1000 graduate students receiving master's degrees and doctorates, as well as nearly 1800 full-time and part-time faculty members. Besides the 4-year MD program, there are a number of dual degree options and students may earn a combined MD/PhD, MD/MPH, or MD/MBA.

Boston University School of Medicine began as the New England Female Medical College, which opened in 1848 as the first institution in the world to offer medical education to women. In 1873, the college merged with Boston University, becoming the first coeducational medical school. Throughout its history BUSM has maintained a strong commitment to the study and practice of medicine in the context of a mission of service to society. In addition, BUSM is a major research institution with over 600 funded research programs and more than 1,000 active clinical trials, providing an exceptional environment for students interested in basic science, clinical investigation, or public health and health services oriented research. Students may also participate in international health programs and a variety of professional and social service activities.

BUSM is distinguished by its programs in cardiovascular diseases, cancer, pulmonary disease, human genetics, dermatology, arthritis, geriatrics, Alzheimer's disease, Parkinson's disease, public health, law and medicine, and medical ethics, among others. Boston University School of Medicine continues to provide the leadership for the Framingham Heart Study, the largest epidemiological study in the world. As a leading medical research institution BUSM is ranked 40th in receipt of federal funding. In 2016, the BUSM received \$385 million in total grant awards, with \$327 million coming from the NIH. The BU School of Public Health, currently ranked #10 in the nation, has an additional \$40 million in grant funding, with an emphasis on global health, maternal and children health and health policy. The school, in partnership with Boston Medical Center, continues to build BioSquare, a 16-acre state-of-the-art biomedical research and business park, next to its campus in the South End. BioSquare

provides BUSM with an additional 2.5 million square feet of research space. There is a particular emphasis on interdisciplinary research programs featuring investigators from the School of Medicine collaborating with investigators at the other medical campus schools (Public Health and Dentistry), our principle teaching hospital (Boston Medical Center), and the Charles River Campus of Boston University. These collaborative projects often focus on urban health problems, health disparities, and issues of health care delivery to vulnerable populations and underserved communities.



***BioSquare Research Center at BUSM***

# Program

## What's Special About the BCRP

1. Residents and faculty: diversity and unmatched quality
2. Unique combination of the leading pediatric subspecialty and research hospital with the leading center in urban pediatrics and patient advocacy
3. Commitment to education and innovative initiatives like the BCRP Academies.
4. Intertwining of high quality research and clinical care
5. Flexibility and family friendliness
6. Academic Development Block
7. Harvard and BU medical students
8. Resident influence on organization of residency through the Residency Program Training Committee
9. Global Child Health Initiative
10. Harvard University, Harvard Medical School and Boston University School of Medicine Libraries and extraordinary electronic library facilities
11. Location of hospitals adjacent to highly desirable living areas in Brookline and Boston
12. Boston and New England

The Boston Combined Residency Program in Pediatrics (BCRP) was formed to meet the needs of the future, bringing together the training programs of Boston Medical Center (formerly Boston City Hospital) and Boston Children's Hospital. Boston Medical Center has a long and important history of clinical research, advocacy, public policy and primary care training for pediatricians in an urban setting. Boston Children's Hospital is the nation's leading research and training institution dedicated to the care of children, adolescents, and young adults with unusual and complex medical problems.

Pediatric care is changing rapidly and the dynamic interface between health care systems, and complex medical challenges requires residency training programs to constantly modify their educational programs. Pediatricians of the future will need advanced knowledge and skills to diagnose and treat children with medical and surgical problems in a primary care setting. Subspecialists will work in close collaboration with primary care clinicians in managing children who require their expertise. Imbedded within this framework of pediatric care must be the continued development of leaders in academic medicine and research.

**Mission:** The BCRP is dedicated to providing outstanding (world-class) clinical training that prioritizes clinical excellence, aligns to the interests and goals of each resident, fosters the acquisition and strengthening of leadership and advocacy skills, creates an environment conducive and supportive of scholarship and innovation, and optimizes the opportunity to advance the science of pediatrics through research.

**Vision:** It is the vision of BCRP that each resident completing our program is an effective leader for child health within any chosen career and is providing clinical

care of the highest quality, optimizing the health and well-being of each child under their care.

**Values:** The BCRP believes that superb training promotes care that is patient and family centered, longitudinal in perspective, collaborative, compassionate and humanistic, culturally competent, evidence-based, high-value, inter-professional, and innovative. The BCRP believes that a superb training experience requires commitment to development of the individual as a professional, life-long learning, development of leaders capable of driving change, inter-professional teamwork, and balance in personal and professional life.

The goal of the BCRP is to provide our housestaff with the skills required to attain leadership positions in academic pediatrics, to support their clinical and research careers, thus allowing them to modify the future direction of pediatric health care. You will receive comprehensive training experiences that emphasize outstanding clinical care, while integrating your training with advances in basic science, and provide you with access to faculty who are leaders in science, clinical care, education, patient safety and quality, global health, advocacy and public policy. The BCRP is committed to provide you with a dynamic training experience while emphasizing humanistic qualities in a supportive training environment to assist you in reaching your professional and personal goals.

We believe the BCRP serves as a national model for pediatric training and comprehensive care for children. It has brought together two great hospitals and universities not for economic gain, but rather to help craft the future of pediatric care and training. We are pleased to offer this program for applicants interested in becoming leaders in pediatrics, and we look forward to working with you as our colleagues to meet the challenges of pediatric health

## BOSTON COMBINED RESIDENCY PROGRAM



***Dr. Sectish meets with a resident***

care and to help shape the future of clinical care, research, and education.

The BCRP seeks to attract individuals from diverse backgrounds including, but not limited to race, ethnicity, disability, socioeconomic status, gender identity, and sexual orientation.

### Tracks

The Boston Combined Residency Program in Pediatrics (BCRP) at Boston Children's Hospital and Boston Medical Center emphasizes training in general pediatrics for all residents, regardless of their ultimate career plans. The program offers two tracks:

- Categorical Track (36 residents) — emphasizing training in academic medicine and pediatric subspecialties
- Urban Health and Advocacy Track (11 residents) — emphasizing training in urban pediatrics, public policy and advocacy

#### **Categorical Track**

This track (**NRMP #1259320C0**) is designed for applicants who wish to focus on academic general or specialty pediatrics. Besides the strong educational base in general and subspecialty pediatrics, principles of academic leadership are actively taught throughout the three-year training program. About 85% of the Categorical track graduates enter subspecialty fellowships or academic general pediatrics fellowships, but some pursue pediatric practice, hospitalist positions, global health and health policy experiences, and health services research training programs.

Categorical track residents have opportunities for research funding, exposure to academic meetings and active mentoring by general pediatrics and subspecialty faculty. Most residents participate in the standard three-



***Dr. Zuckerman Reaches Out and Reads***

year curriculum; however, the two research tracks of the American Board of Pediatrics—the Integrated Research Pathway, and the Accelerated Research Pathway—are available to housestaff pursuing academic research careers. In fact, the BCRP has had the most residents participate in these so-called “fast-tracking” pathways of any program.

Categorical residents do approximately 70 percent of their training at Children's Hospital and 30 percent of their training at Boston Medical Center.

#### **Urban Health and Advocacy Track**

The mission of this track (**NRMP #1259320C1**) is to cultivate a community of pediatricians focused on caring for underserved and marginalized children. Urban Health and Advocacy track (UHAT) residents believe that reducing health disparities is central to their lives as pediatricians, whether in primary care, subspecialty or acute settings. The track allows residents to focus on their interests in social justice, general academic pediatrics, public health policy, legislative advocacy, community pediatrics, and global health. Development of leaders in these areas is a goal of this track. As PL1s, UHAT residents, as a group, participate in the Keystone block which includes the residency advocacy curriculum. Beginning in the PL2 year, UHAT residents select an additional half-day experience to augment their training. Residents have the option of choosing between a second continuity clinic or a project in urban health, advocacy, international health or public policy. The UHAT curriculum is enhanced by monthly educational “research, advocacy and policy” (RAP) sessions on child health and advocacy, as well as by regularly scheduled community building and networking evenings.

Many UHAT graduates have careers in general or subspecialty pediatrics with a focus on health care issues of the urban poor, serving as researchers, advocates,



## BOSTON COMBINED RESIDENCY PROGRAM

community leaders and clinicians. They often practice in urban settings, and many pursue academic general pediatric fellowships, advocacy fellowships, masters programs in public health and health services research fellowships.

UHAT residents spend 35 percent of their time at Boston Medical Center and 65 percent at Children's Hospital. Inpatient general pediatrics rotations are spent primarily at Boston Medical Center in the PL-2 and PL-3 years.

### Common Aspects

Both Categorical and Urban Health and Advocacy tracks are geared towards training outstanding general pediatricians. Scheduled rotations in the two tracks are very similar and all residents work at both institutions. However, the faculties at Boston Children's Hospital and Boston Medical Center have different interests and the two institutions have a different focus, which allows residents to focus upon their individual goals and take advantage of the diverse resources to explore and prepare for careers in virtually any aspect of pediatrics.

It is important to emphasize that residents in the two tracks are all part of the same program and function as one. They are totally integrated in all aspects of the program and, aside from the program leaders, few faculty or staff know which residents belong to which track.

As described in detail in the Application section, each track has a separate match number through the National Resident Matching Program (NRMP) and has a separate selection process. Applicants can apply to either one or both tracks. Because the tracks are quite similar, the program is highly unified, and because most applicant's interests overlap the missions of both tracks to some degree, **most applicants should apply to both tracks.**

### Combined Pediatrics-Anesthesiology

The BCRP was one of the first residency programs to offer combined training in Pediatrics and Anesthesiology (**NRMP #1259726C0**). Residents spend their first year in pediatrics residency. The following year is the first year of anesthesiology training, followed by three years of integrated residency training in both pediatrics and anesthesiology. Throughout the three years of integrated training, while residents are doing core training in Pediatrics or Anesthesiology, they attend conferences and participate in core clinical activities once a month in the other discipline to keep the combined program fully integrated. There is a core seminar series that will occur throughout the year to bring together the residents in the

combined training program. The seminar will cover topics specific to pediatric anesthesiology.

Individuals ideally suited for this combined training will likely pursue careers at the interfaces between critical care, pediatrics, and anesthesiology. Examples of such careers include hospitalist medicine, pain and palliative care, out-of operating room procedural and sedations services, and members of integrated subspecialty teams in pediatrics, critical care and anesthesiology.

The program is described in more detail [here](#).

### Combined Pediatrics-Medical Genetics

The BCRP is one of the few residency programs in the country that offers combined training in Pediatrics and Medical Genetics (**NRMP #7652444017**). The program is four years and offers the opportunity to be board-certified in both fields. Residents spend their first year in pediatrics residency. During the following two years, residents alternate between rotations in clinical genetics and pediatrics every six months. The fourth year is spent completing clinical genetics training, as well as a genetic research project. During their training in genetics, residents continue to attend their pediatrics primary clinics and are encouraged to participate in other BCRP educational programs.

The combined pediatrics-medical genetics residency is best suited for individuals who have a clear interest in medical genetics at the time of application. These individuals may envision clinical careers in genetics and genomics, biochemical genetics, complex care, or careers in research, bioethics, or advocacy for individuals with genetic disorders.

The program is described in more detail [here](#).

### Combined Pediatrics-Child Neurology

The BCRP offers two different Pediatrics-Child Neurology programs: one a joint program between the Categorical Track and the Child Neurology program at Boston Children's Hospital (**NRMP #1259185C0**), and one between the Urban Health and Advocacy Track and the Child Neurology program at Boston Medical Center (**NRMP #1257185C0**). These two "Categorical" programs both begin with 2 years of general pediatrics in the appropriate track of the BCRP followed by three years of child neurology at either Boston Children's Hospital or the Boston Medical Center, depending on the program. Both child neurology programs also offer separate "Advanced" positions that are not linked to the BCRP, where the matched residents first complete their 2 years of general pediatrics in some other program.

## BOSTON COMBINED RESIDENCY PROGRAM

More detail is available regarding the programs at [BCH](#) and [BMC](#).

### Neurodevelopmental Disabilities Preliminary Position

The BCRP offers one two-year Preliminary-NDD position (**NRMP #1259320P1**) to those who match in the Boston Children's Hospital Neurodevelopmental Disabilities (NDD) training program (**NRMP #1259186A0**). NDD is an ACGME-accredited program combining 2-years of pediatric training with 4-years of training in adult and pediatric neurology, adult and pediatric NDD, and basic and clinical sciences. Children's Hospital only offers an Advanced four-year NDD position, which begins in 2018. However, the linked BCRP Preliminary position allows applicants who match into that position to complete their entire six-year NDD training in Boston.

The program is described in more detail [here](#).

### Global Health Pathway

Starting in academic year 2018-2019, two residents per year will be selected via a competitive application process for the Global Health Pathway of the BCRP. The goal of this pathway is to provide each resident with mentorship for global health careers, with dedicated individualized academic afternoons during retreats (replacing a BCRP Academy), to provide a community including dedicated faculty mentors, and to support the generation of additional resident-driven curricula, including journal clubs and networking events. Residents in this pathway

would also work with their mentors to help plan 4 weeks of contiguous call-free elective time for global health electives/fieldwork in the junior year, and seniors will have 6 weeks of contiguous call-free time for global health fieldwork. Incoming interns in either the categorical or UHAT tracks will apply immediately after matching.

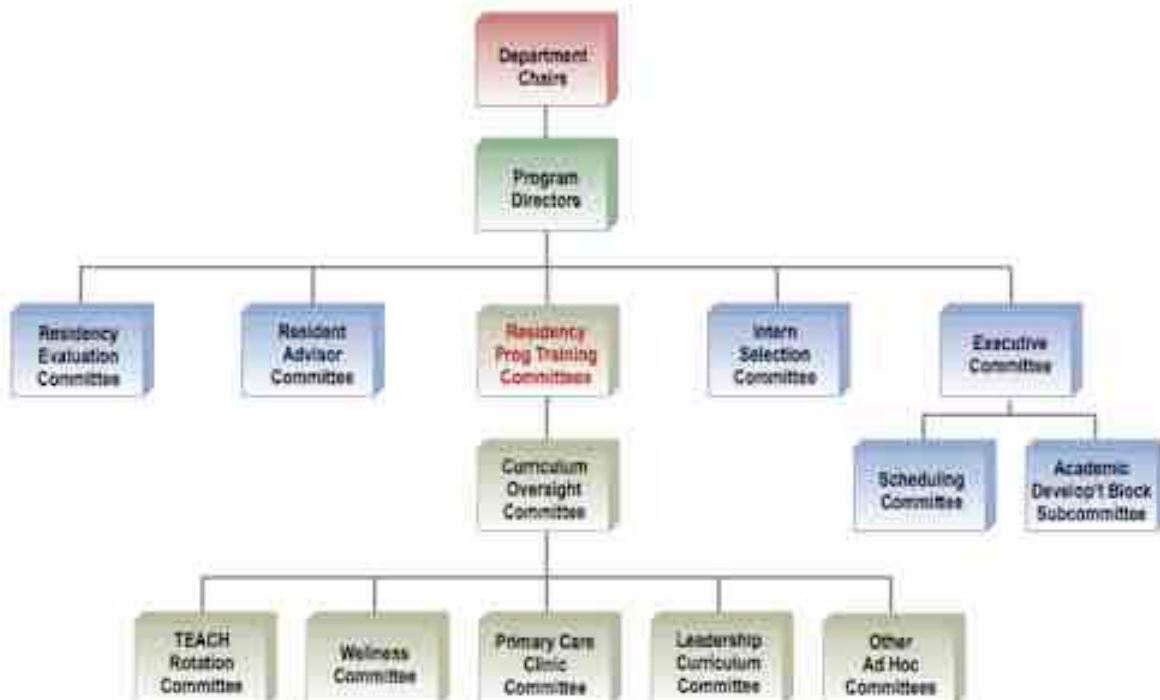
## Harvard BWH/BCH Med-Peds Residency

The Harvard Associated Medicine & Pediatrics Programs were established in the late 1980s. The highly competitive program at the Brigham and Women's Hospital and Children's Hospital is fully integrated into each categorical residency. Med-Peds residents have the same supervision, responsibilities and opportunities as their medicine and pediatrics colleagues and are a vital part of the BCRP.

More information about the Harvard BWH/BCH Med-Peds Program is available [here](#).

## Residency Program Organization

The Residency Program Training Committee (RPTC) was established in the 1970s. It is the BCRP Program Evaluation Committee and is responsible for review of the curriculum and for development of new training initiatives. The committee's structure, shown in the figure on the next page, aligns residents and faculty members with the main educational elements of the residency program curriculum. The RPTC Executive Committee oversees and



## BOSTON COMBINED RESIDENCY PROGRAM

integrates the work of five standing Committees for Inpatient Care, Subspecialty Experiences, Intensive Care, Ambulatory Experiences, and the Individualized Curriculum. On all committees of the RPTC, there are faculty representatives from each institution, but residents elected from each class constitute the majority of the committee members. The fact that residents in the Boston Combined Residency Program (BCRP) are primarily responsible for directing their own program and deciding critical details is one of the strengths of the program.

Based on new 2013 ACGME Program Requirements for Graduate Medical Education in Pediatrics the RPTC and its standing Committees redesigned the residency program curriculum while maintaining compliance with new program requirements. Our aim was to create an innovative curriculum that provided rigorous pediatric training, met curricular needs, and provided flexibility for professional development. We believe the new BCRP curriculum reflects the mission, vision, and values of our program and enhances the academic focus of residents, a focus that sets us apart as a pediatric residency program nationally.

### BCRP Administration and Operations

The BCRP is the union of prior residency programs at Boston Children's Hospital (BCH) and Boston Medical Center (BMC) and functions as a one integrated program with the leadership at each institution working collaboratively. At each site there are weekly meetings of the program leaders (program directors, chief residents, administrative staff, and, when appropriate, department chairs). The Executive Committee is composed of all program leaders and meets monthly and alternates sites.

Regular class meetings every few months allow for exchange of ideas, information, and address areas of needed improvement. Town hall meetings of the entire residency serve a similar function and occur every two to three months. These gatherings provide an open forum for discussion on a variety of topics related to residency education.

Progress Notes, a weekly newsletter, written by the chief residents, provides an opportunity for real time discussion of events, ideas for curricular change, areas of success to celebrate, or areas of improvement that need action.

In these multiples venues, we hope to continue to foster bidirectional exchange of information, ideas, and issues with the ultimate goal of constantly improving the education and training within the BCRP.



Residents serve as a driving force for change in the program. They play a key role in the Residency Program Training Committee and the resident voice at class meetings and town hall meetings is pivotal to curricular development. The wonderful collaboration of residents with chief residents and program leadership is a significant feature of the BCRP.

### The 2018-2019 BCRP Program

The re-designed residency program is the culmination of the efforts of residents and faculty on the five Committees of the Residency Program Training Committee over the past several years and new elements that were identified by the 2015 Strategic Planning Process and Retreat. Many members of the residency community were involved in the in-person retreat including resident representatives, chief residents, program leadership, invited faculty from Boston Children's Hospital and Boston Medical Center and several outside consultants. The retreat focused on three domains: clinical excellence, leadership development, and resident experience. Recent changes to the program include:

- Supervisory rotations in the junior year
- TEACH rotation in the junior year
- Bringing I-PASS to the bedside: patient and family centered rounds
- Stem Cell Transplant rotation in the junior year.

#### Supervisory Rotations in the Junior Year

We have focused a lot of our curricular changes on the junior year with **a major goal is to provide more supervisory experiences earlier in residency.** Supervisory experiences in the junior year also support the curricular needs of residents in combined programs and non-standard research pathways. We included new



## BOSTON COMBINED RESIDENCY PROGRAM

experiences to expand the list of experiences that are already supervisory in the program now: Brigham and Women's (BWH) Delivery Room Rotation, Boston Medical Center (BMC) NICU Junior, Boston Children's Hospital (BCH) 6Subs Junior, BCH Intermediate Care Program (ICP) Junior, BCH Short Stay Unit Junior, and BMC Ward Junior. The respective night rotations also provided supervisory experiences. We believe these new experiences provide juniors with more opportunities to expand their leadership skills.

### TEACH Rotation in the Junior Year

We offer a 2-week rotation in the junior year that is call-free and is focused on the development of teaching skills. The semi-structured schedule provides specific teaching sessions for residents to practice teaching in different venues from Senior Rounds to chalk talks. In addition, there are opportunities for *in situ* teaching while serving in a preceptor role in the Urgent Care Clinic. This rotation is offered to all categorical residents and UHAT residents. Residents in combined programs or those on non-standard pathways may elect the experience. We have a small cadre of faculty who will serve as mentors to observe and give feedback.

### Bringing I-PASS to the Bedside: Patient and Family Centered Rounds

This initiative aims to reduce medical errors, improve the patient, family, and provider experiences, and promote a shared mental model of the plan of care. Based on pilot data that patients and families had a discordant understanding of the plan of care, Alisa Khan and Christopher Landrigan developed an Intervention Bundle and launched a multisite project across North America. They found impressive results, with a 38% reduction in adverse events following implementation of the Intervention Bundle! We have implemented the new approach to care at Boston Children's Hospital and Boston Medical Center on the general inpatient units-The Intervention Bundle consists of: 1) engaging and empowering patients and families with an orientation to Patient and Family Centered Rounds on admission (with a brochure); 2) a new format of discussion on rounds based on the organizing framework of the mnemonic, I-PASS, *plus* a written Rounds Report that summarizes what we discussed; and 3) standardized communication techniques throughout the day and night shifts with an inter-professional Huddle at mid-shift. We have been training faculty at both sites this Spring and will do training at Rising Junior Orientation, Rising Senior Orientation and New Intern Orientation. Patients and families and nurses have responded positively to this enhance rounds structure.

### Stem Cell Transplant Moves to Junior Year

In order to accommodate the request of many subspecialty bound residents (especially those headed for heme/onc and critical care fellowships) and to provide for the flexibility needed to meet scheduling needs between the junior and senior year, Stem Cell Transplant will now be a call-free junior year rotation. This highly rated rotation educationally provides an opportunity to care for a very sick patient population with an integrated inter-professional team. Interestingly, the majority of patients transplanted are not hematologic malignancies.

### Mindfulness Curriculum

Based on new data showing that mindfulness practice can improve or prevent burnout, which has a significant impact on physician well-being and ability to deliver compassionate patient care, former residents Yarden Fraiman and Alexandra Coria developed a week-long mindfulness meditation curriculum for the BCRP. Yarden and a team of residents, chief residents and faculty piloted the curriculum for interns. It included a noon conference series, an evening curriculum, and daily emails that introduce a variety of mindfulness techniques that residents can use on the job to reduce stress, improve sleep, and improve overall wellness by being mindful in the present moment. There are plans to expand into a multicenter randomized controlled trial across the country in pediatric residencies.

### Brigham NICU Rotation

This year we will pilot a Q4 Call system with interns doing 24 hour shifts in order to provide continuity of care. There will be an additional period of 4 hours after the shift to transition care. This change will enable better communications at morning handoff and will enable interns to follow changes in patient status with improved continuity of care.

### Intermediate Care Program (ICP) Rotation

With the geographic separation of the ICP on the 9<sup>th</sup> and 11<sup>th</sup> floors, we will feature two teams with an intern and a supervising resident (juniors and seniors) on each floor. This change will enable better communication and immediate access to these higher acuity patients.

### Primary Care Rotation Moves to Junior Year

Initially piloted in the senior year, this immersion experience which is call free offers categorical and UHAT residents an enhanced experience to those individuals who are considering primary care as a career. Being call free also allows some work decompression during a busy junior year. Ron Samuels and Melissa Nass serve as

# FUNuary

## 2016

Evening and weekend events for residents, sig-Os, and kiddos!

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 FUN AT WORK!	2 FUN AT WORK!	3 Frog Pond Ice Skating Cost: FREE Pick up your passes from Carolyn	4 FUN AT WORK!	5 HSA FORMAL! Cost: \$30 per guest Loc: Harvard Club Time: 6:30p	6 Paints-Making with Bob and Tom Loc: Bob's House Time: 3:30pm
7 Pancake Waffles @ BOH Loc: PHB Time: 8a-11a	8 Yoga by Steph Loc: BOH Parley J25 Time: 9:30p-7:00p	9 FUN AT WORK!	10 Bowling Night Loc: Lucky Strike Time: 8p - 11p	11 HAPPY HOUR Loc: Cambridge Pub Time: 8p - 11p	12 Soyed by the Bell 90s Theme Day	13 Snow Tubing! Loc: Reister's Ski Voles Cost: \$30 per person Time: 4p-7p
14 Movie Matinee Loc: AMC Boston Time: 4p to 6p [OK Christmas New Year Celebration] **See below!!	15 Yoga by Sam Loc: BOH Byers A/R Time: 6:30p-7:30p	16 BMC: Chair Massage (SIGN-UP) BOH: Chair Yoga, Reiki, Meditation	17 Trivia Night Loc: Garry's (South End) Time: 7p	18 FUN AT WORK!	19 Withered: Farnet Friday Theme Day and then... Roasting & Mixed Wine at Kate and Ben's Loc: Ben's apartment Time: TBD	20 Trampoline Dodgeball Loc: Saylene Martin Time: 2p
21 Mixology with Tom Sandora Loc: Tom's apartment Time: TBD	22 Intensity Workout Loc: BOH Parley J25 Time: 6:30p-7:30p	23 Improv Comedy Show Loc: Improv Asylum (North End) Show Time: 8p	24 FUN AT WORK!	25 Escape the Room Loc: 53 West St, Boston Cost: \$25 per person Time: 7-11p	26 Chris Theme Day	27 BubbleBall Soccer Loc: 28 Chime Ave, Allston Time: 100p
28 "How-to Homebrew" and Craft Beer Tasting Loc: Emily's apartment Time: TBD	29 HAPPY HOUR Loc: Game On Time: 8p - 11p					



Mixology session at Associate Program Director Tom Sandora's house



Pet therapy



Post call waffle making

## BOSTON COMBINED RESIDENCY PROGRAM

rotation directors and will offer this as an elective for those in combined training programs or on research pathways.

### Future Educational Initiatives and Personal and Professional Development Program-wide in the BCRP

Currently, we are developing a strategy to address the major initiatives that were identified in the Strategic Plan:

- **BCRP Wellness Committee** – This committee developed activities and programs to enhance the personal and professional development of residents. As an example, we designated February as “**Funuary**” and created a series of fun leisure activities that brought residents and program leaders together.
- **Leadership Curriculum** – We introduced a Leadership Curriculum spanning all three years that focuses on team leadership within the program and leadership roles in one’s future career with one housestaff-wide retreat focusing on leadership topics.
- **BCRP Diversity Committee** – This committee focuses on the recruitment of individuals with diverse backgrounds to the BCRP. It is part of our program’s aim to attract people who bring diverse perspectives to enhance the program and serve our diverse patient population.

## Other Program Features

### The BCRP Academies: Innovative Academic Homes

The BCRP has a long history of producing academic pediatricians. We identified the need for academic homes consisting of residents, faculty and other trainees who share intellectual interests. We created five BCRP Academies consistent with the interests and intellectual pursuits of our trainees and our faculty:

- Academy of Basic and Translational Investigation
- Academy of Clinical Investigation
- Academy of Clinical Innovation
- Academy of Medical Education
- Academy of Community and Global Medicine

The overarching goals of the BCRP Academies are to:

- Promote formal and informal faculty-resident interactions and mentorship
- Promote and support scholarly pursuits
- Develop Academy-specific concrete skills such as grant writing, bedside teaching and participating on project teams
- Assist residents as they make decisions about their academic careers

Faculty within the BCRP Academies are motivated individuals who may serve as project or career mentors and provide residents guidance, advising, coaching, and professional development. Each resident has 6 months of Individualized Curriculum built on the foundation of our longstanding and unique PL3 rotation, the Academic Development Block (ADB). This 3-month block provides each BCRP resident with the opportunity to do a scholarly project. Mentoring residents about their Individualized Curricula (ADB coupled with other clinical experiences) is a focus of the BCRP Academies.

Academy activities begin during Intern Orientation with scheduled time throughout the year. Interns select an Academy at the beginning of the year; however they are able to switch Academies throughout their residency if their interests change. Residents participate in a variety of Academy-related functions and events:

- Intern Orientation – Introduction to the Academies
- Noon Conferences and Journal Clubs
- Afternoon workshops and seminars six times per year
- Evening events such as networking receptions or Data Blitz Sessions (brief presentations by faculty of exciting research) about twice per year
- Individual mentoring by Academy leaders and faculty
- Academy-led sessions at the fall and spring retreats

The Academies are the professional development homes within our training program. They serve the individual needs of our trainees as they launch their academic careers and provide a way to identify mentors and innovative projects.

### Interest Groups

Two years ago the BCRP residents and faculty established Interest Groups across a wide range of specialties. The purpose of these groups is to introduce residents to subspecialties they are considering after residency and to faculty in those fields, and to help in identifying mentors. Each interest group is headed by one or more residents and one or more faculty members, who recruit members and organize activities. The activities vary but often include dinners or other social affairs that promote discussion. The interest groups include:

- Adolescent Medicine
- Allergy, Immunology & Rheumatology
- Cardiology
- Critical Care
- Developmental-Behavioral Pediatrics
- Emergency Medicine
- Endocrinology
- Gastroenterology & Hepatology
- General Pediatrics



## BOSTON COMBINED RESIDENCY PROGRAM

- Genetics and Genomics
- Hematology/Oncology
- Hospital Medicine
- Infectious Diseases
- Nephrology
- Newborn Medicine
- Primary Care
- Pulmonology



*Recent changes in the program provide more time with patients*

### Geographic Ward Team Structure and Family Centered Rounds

Several years ago, the BCRP created multiple geographic (unit-based) ward teams to improve patient care, optimize communication with the nursing staff, and enhance efficiency of team function. Subsequently, we implemented family centered rounds on our general pediatrics teams at BCH and BMC. The aim of this change was to increase time at the bedside, to empower interns with greater ownership of their patients and direct communication with patients and families on rounds, and to create a more efficient team structure. To facilitate this change in rounds format, we split our traditional four-intern teams (with one Senior and an Associate Senior) into two teams, each with its own Senior. The two projects have been a success and have improved nurse-resident communication (Gordon MB. Arch Pediatr Adolesc Med 2011; 165:424-428).

### The I-PASS Handoff Curriculum

As part of our aim to improve communication and patient safety (reduction in medical errors), we piloted and implemented a standardized approach to resident handoffs on the inpatient units with the introduction of the I-PASS handoff process. We employ a standard language for our verbal handoffs to focus the discussion at evening sign-out. Using our EMR, we developed an electronic handoff tool that imports medical information automatically and residents update text fields within the electronic handoff tool to provide timely information

about:

- Illness severity
- Patient summary
- Action lists
- Situation awareness and contingency planning
- Synthesis by receiver

This curriculum is evidence-based and ensures a shared



mental model for the care of patients on the team. The pilot study demonstrated a 40% reduction in medical errors, a decrease of time at the computer (roughly 30 minutes per day), and increased time at the bedside (30

minutes per resident per day). On the basis of these results, we are implementing the I-PASS handoff process across our program. More information about the I-PASS study and the educational curriculum is available at [www.ipasshandoffstudy.com](http://www.ipasshandoffstudy.com), and in several publications: Sectish TC. Pediatrics 2010;126:619-622, Starmer AJ. Pediatrics 2012;129:201-204, and O'Toole JK. J Peds 2013;162: 887-888, and Starmer AJ. JAMA 2013;310:2262-2270 (Featured article in the annual JAMA Medical Education Issue).

As we have always done, we continue to emphasize educational scholarship in our program and study the impacts of curricular change.

## Special Class-wide and Residency-wide Educational Events

### Intern Orientation

The BCRP features an intensive orientation process with the specific intention of better preparing interns for the first day of internship. Besides the traditional information sessions, we deliver simulation exercises to enhance the function of interns in their inpatient rotations, and provide modules and clear guidelines about written documentation, oral presentations, procedures, the I-PASS handoff curriculum, and on-call expectations. We also orient new interns to the information systems and have them gain competence in writing orders, viewing medical information, laboratory results and images, and in navigating the electronic health record systems.

### Intern Boot Camp

Based on feedback from current residents and staff, the BCRP recently added a new clinical boot camp to intern orientation. During the boot camp, incoming interns

## BOSTON COMBINED RESIDENCY PROGRAM



*Practicing procedures during intern orientation*



*Breakfast together at intern retreat*

spend time on the wards taking care of a small number of patients in a highly supervised fashion. Among other topics, there is instruction on how to present a patient on family centered rounds, how to call a consult, how to safely enter orders and how to document effectively and efficiently. Interns are able to practice these skills with increased supervision and guidance and therefore be better prepared for clinical practice on day 1 of their first rotation. The new program has been enthusiastically received by the interns who feel it gives them confidence and better prepares them to start internship.

### Retreats

There are two residency-wide retreats held in the fall and late winter in which we address a variety of topics that are part of the basic culture or values of the residency program. In the past, we addressed themes such as teaching, leadership, feedback, work-life balance, patient centered care, communication skills, the I-PASS handoff curriculum, Patient and Family Centered Rounds based on the I-PASS mnemonic, and skills training. It is an opportunity for all residents to spend a day together to reflect on the topics and have a welcome break from the day-to-day grind of residency.

Residents provide the program with enormous feedback during these retreats, and this feedback drives curricular innovation, renovation and, at times, transformational change for the BCRP.

### Rising Class Orientations

In the late spring, we host class-wide orientation for Rising Juniors and Rising Seniors, in which we focus on new aspects of the curriculum, leadership skills, and personal and professional development.

## Flexibility: A BCRP Value

The size of the program affords opportunities for residents to personalize their training experience. Many residents have unique educational and career objectives, and the BCRP makes every effort to adapt the standard schedule to accommodate these whenever possible. Requests for individual training experiences must be made well in advance of the next academic year (8-9 months).

Here are some of the ways our residents have used this flexibility:

- Attending national meetings related to pediatrics, pediatric subspecialties, and other areas of interest, and presenting work at these meetings
- Serving on national committees (AAP, AMA, etc)
- Pursuing international research and clinical experiences
- Taking advantage of unique elective experiences, like working for the Medical Unit of ABC News
- Participating in one of the ABP-approved research tracks (Integrated Research Pathway or Accelerated Research Pathway)
- Taking a year off to pursue other training or research
- Focusing on career-specific or subspecialty experiences in the senior year

Finally, size allows for flexibility with family issues, including paid maternity and paternity leave, leaves for illness or family emergencies, and occasionally for part-time schedules (for personal or academic reasons).

# Rotations: Year-by-Year Snapshot

### Overview

The BCRP curriculum is designed to provide increased responsibility during the first two years, culminating in a strong supervisory year. All rotations occur at either Boston Children's Hospital, Brigham and Women's Hospital, or Boston Medical Center. Residents are not asked to staff other hospitals during their training period. The intern year focuses on building a foundation in general pediatrics, beginning to build a longitudinal ambulatory practice, and gaining experience in advocacy. The junior year introduces rotations on subspecialty and acute care units, experiences that are often more challenging than those in the intern year and more suited to the enhanced capabilities of junior residents. Junior residents also acquire some supervisory experience, formal teaching experiences, and have time to individualize their curriculum. Notably, junior residents are introduced to multiple new learning experiences and are not asked to replicate intern rotations. The senior year focuses on supervisory experiences, acute care, individualized learning opportunities and research.

### First Year, PL-1

The intern year experiences are intended to develop a foundation of pediatric knowledge, along with the practical skills and confidence needed to work independently and supervise other residents in the subsequent years of the residency.

Interns take front-line responsibility for the care of patients in the inpatient wards, ambulatory clinics, and emergency departments at both BCH and BMC, as well as in the NICUs at BMC and Brigham and Women's Hospital (BWH). In these settings, interns learn how to care for patients with a wide range of pediatric illnesses and illness acuities. Interns also participate in teaching medical students from Harvard Medical School and Boston University School of Medicine.

**Building the foundation:** Most of the inpatient experiences during the intern year involve covering the pediatric wards at both BCH and BMC. These teams are geographically based and comprise a mix of general pediatric and subspecialty patients. Interns also cover the Intermediate Care Program (a PICU step-down/floor step-up unit at BCH). Neonatal experiences take place in the newborn nurseries and NICUs at BMC and BWH. Finally, interns work in the Emergency Departments of BMC and BCH. Interns also get an introduction to subspecialty care during their four-week Pulmonary rotation, a primarily inpatient service with one week of outpatient clinic as well.



**Ambulatory experiences:** All residents belong to a Continuity Clinic, where they care for their personal patient population panel over the course of three years including occasional work in Urgent Care. In addition to this, interns participate in longitudinal ambulatory experiences in Developmental and Behavioral Pediatrics and in Adolescent Medicine during the Keystone blocks. Interns are also exposed to subspecialty ambulatory clinics during their Pulmonary rotation.

**Advocacy experiences:** All interns participate in four total weeks of formal advocacy training during their Keystone blocks. During this time, they gain knowledge of community resources and local and state advocacy programs, skills in media and legislative advocacy, and broader understanding of career opportunities in advocacy, public policy and global health.

### Second Year, PL-2

The junior year is when residents get their most concentrated exposure to subspecialty and acute care pediatrics accompanied by an increase in decision-making autonomy and responsibility for high-acuity, often critically ill patients. The junior year also introduces supervisory roles and affords more opportunities for leadership and teaching.

**Increased acuity, increased autonomy:** Juniors are the only residents on the following BCH subspecialty inpatient services: GI, Cardiology, Complex Care, and Oncology. Breadth of subspecialty experiences is maintained by building in protected ambulatory experiences into each of these primarily inpatient subspecialty units.

Juniors also work with increased autonomy caring for acutely ill patients in the EDs at BMC and BCH, serve as the main responders to all deliveries requiring a pediatrician at BWH, and cover one of the three main teams in the Medical-Surgical Intensive Care Unit (MSICU). These rotations require juniors to build on the clinical skills and knowledge gained during the intern year, become more



## BOSTON COMBINED RESIDENCY PROGRAM



***Consulting nuclear medicine***

nuanced in their evaluations and differential diagnoses, and more independent and efficient in patient management.

**Supervisory experiences:** Juniors supervise interns in the BMC Ward and NICU, in the BCH Intermediate Care Program, on two geographic subspecialty teams (a Hematology, Renal, Allergy, Immunology, Rheumatology, Endocrine, Adolescent, and subspecialty Pulmonary team), and on the General Pediatrics Teams. They are also frequently role models and sources of support for interns in the EDs at BCH and BMC. Many of our residents love to teach and lead, and these experiences are highly valued by juniors as opportunities to participate in shaping the culture of the BCRP.

**Resident as Teacher Curriculum:** Juniors have a two week TEACH rotation focused on developing residents' supervisory and teaching skills. It includes scheduled activities such as delivering a chalk talk, practicing feedback, and precepting medical students, as well as provides individualized time tailored to each resident's career goals.

**Individualized Curriculum:** The junior year includes 6-10 weeks of elective time, of which 2 weeks are call-free. Juniors use this time to personalize their training experience by pursuing further exposure to pediatric subspecialties, dedicating time to research or teaching, engaging in global health experiences, and a myriad of other options. Some are structured by the residency program and others are individual and unique.

**Expanded UHAT opportunities:** UHAT residents have a half-day every month when they can choose between a second continuity clinic and a project in urban health, advocacy, global health or public policy.

### Third Year, PL-3

The seniors are the main leaders and teachers for the residents of the BCRP. The General Pediatrics supervisory



***Senior teaching at the bedside***

experiences are highly valued by seniors, allowing them to integrate the knowledge and skills acquired in the previous two years, while taking an active role in promoting the development of interns and medical students.

**Individualized curriculum:** Seniors are also provided time to focus on individual and career interests through the individualized curriculum which consists of 12 weeks time on the Academic Development Block and 8 to 12 additional weeks of elective time. The Academic Development Block is a unique opportunity for senior residents to spend a sustained amount of time focusing on research, education, policy or advocacy projects that fit their clinical interests and future career goals. Our residents have used this time in an incredible variety of ways!

**Team leadership and education:** Senior residents supervise on the General Pediatric services at BCH and on the Pediatric Ward at BMC and the Intermediate Care Program. Categorical track residents generally spend more of their supervisory time at Children's Hospital, while most Urban Health and Advocacy track residents spend more time at Boston Medical Center. However, individual preferences for supervisory experiences are considered whenever possible.

**Call-free time:** All senior residents have approximately 6 weeks of call-free time during the year.

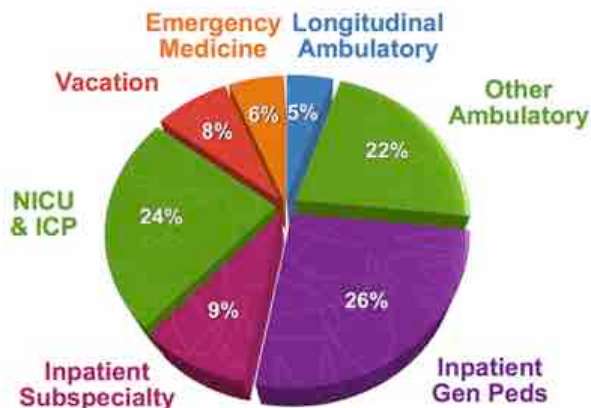
## BOSTON COMBINED RESIDENCY PROGRAM

### Categorical Track PL-1 Rotation Schedule

Service	Units 1U = 4 wk	Night/Weekend Call
Inpatient Day Service (BCH Gen Peds, 7Subs, BMC Ward)	2-4	Work 2 wknds Off 2 wknds
Inpatient Day Service (6E/6Subs)	0-0.5	No overnights, Work 6 days/wk
Inpatient Day Service (Pulmonary)	1	Every 4th night.
Inpatient Night Service (BCH Gen Peds, 7Subs, BMC Ward)	0-1	Work 5 nights on night float, off 2 nights
Neonatal Intensive Care Unit	1-2	BWH: Every 4th night. BMC: Day shifts. On 2 wknds, off 2 wknds
Newborn Nursery	1	No overnights. Work 2 wknds. Off 2 wknds
Child Development (Keystone)	1	4 to 5 nights in ICP during Keystone block
Adolescent Medicine (Keystone)	1	4 to 5 nights in ICP during Keystone block
Emergency Medicine	0.5-1	Day and evening shifts
Intermediate Care Program (ICP)	0-1	Work 2 wknds Off 2 wknds
Community Health and Advocacy (Keystone)	1	4 to 5 nights in ICP during Keystone block
Vacations	Two 2-wk breaks	---
Continuity Clinic	---	1 afternoon/wk on average

### Urban Health and Advocacy Track PL-1 Rotation Schedule

Service	Units 1U = 4 wk	Night/Weekend Call
Inpatient Day Service (BCH Gen Peds, 7Subs, BMC Ward)	2-4	Work 2 wknds Off 2 wknds
Inpatient Day Service (6E/6Subs)	0-0.5	No overnights, Work 6 days/wk
Inpatient Day Service (Pulmonary)	1	Every 4th night.
Inpatient Night Service (BCH Gen Peds, 7Subs, BMC Ward)	0-1	Work 5 nights on night float, off 2 nights
Neonatal Intensive Care Unit	1-2	BWH: Every 4th night. BMC: Day shifts. On 2 wknds, off 2 wknds
Newborn Nursery	1	No overnights. Work 2 wknds. Off 2 wknds
Child Development (Keystone)	1	4 to 5 nights in ICP during Keystone block
Adolescent Medicine (Keystone)	1	4 to 5 nights in ICP during Keystone block
Emergency Medicine	0.5-1	Day and evening shifts
Intermediate Care Program (ICP)	0-1	Work 2 wknds Off 2 wknds
Community Health and Advocacy (Keystone)	1	4 to 5 nights in ICP during Keystone block
Vacations	Two 2-wk breaks	---
Continuity Clinic	---	1 afternoon/wk on average



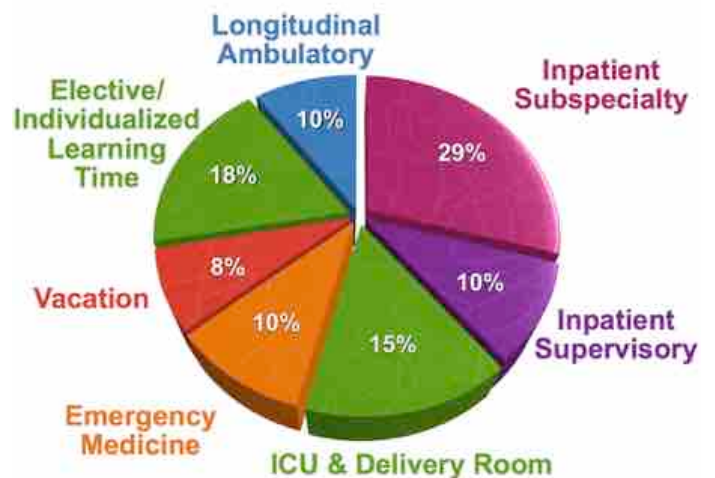
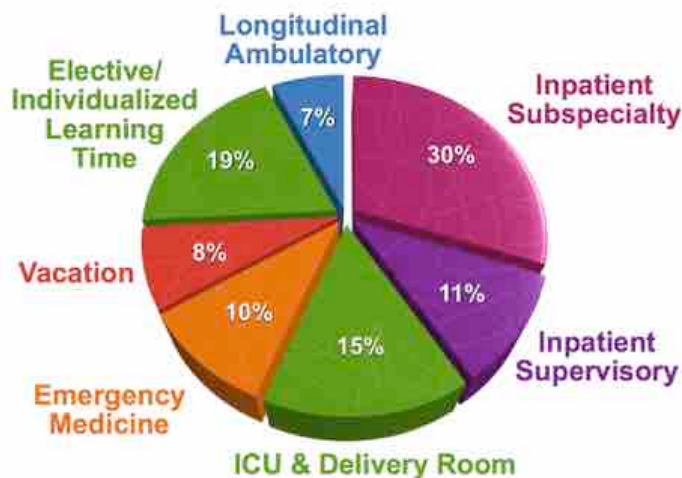
## BOSTON COMBINED RESIDENCY PROGRAM

### Categorical Track PL-2 Rotation Schedule

Service	Units 1U = 4 wk	Night/Weekend Call
Supervisory Experience: (GPB, GPC, BMC Ward, CCS, ICP, 6E/6Subs, 7Subs)	1-2	BCH Gen Peds/BMC Ward/7Subs: 2 Friday calls, 2 Sunday day shifts CCS: Every 4 <sup>th</sup> night ICP: Night float 6E/6Subs: No call on outpt. On 2 wknds, off 2 wknds while on inpt.
Inpatient Wards (GI, CCS, Cardiology)	2-3.5	Every 4 <sup>th</sup> night
Medical-Surgical Intensive Care Unit	1-2	Every 4 <sup>th</sup> night
BWH Delivery Room (DR-1)	0.5-1	Every 4 <sup>th</sup> night
Oncology	1-2	Every 4 <sup>th</sup> night
Stem Cell Transplantation Unit	0-0.5	Day shifts 6 days/wk
Emergency Medicine	1-2	Overnight shifts in 2 week blocks (5 nights on, 2 nights off)
TEACH	0.5	2 weeks call-free
Electives	2-3.5	8 wks every 4 <sup>th</sup> night call. 2 weeks call-free
Vacations	Two 2-wk breaks	---
Continuity Clinic		1 afternoon/wk on average

### Urban Health and Advocacy Track PL-2 Rotation Schedule

Service	Units 1U = 4 wk	Night/Weekend Call
Supervisory Experience: (GPB, GPC, BMC Ward, CCS, ICP, 6E/6Subs, 7Subs)	1-2	BCH Gen Peds/BMC Ward/7Subs: 2 Friday calls, 2 Sunday day shifts CCS: Every 4 <sup>th</sup> night ICP: Night float 6E/6Subs: No call on outpt. On 2 wknds, off 2 wknds while on inpt.
Inpatient Wards (GI, CCS, Cardiology)	2-3.5	Every 4 <sup>th</sup> night
Medical-Surgical Intensive Care Unit	1-2	Every 4 <sup>th</sup> night
BWH Delivery Room (DR-1)	0.5-1	Every 4 <sup>th</sup> night
Oncology	1-2	Every 4 <sup>th</sup> night
Stem Cell Transplantation Unit	0-0.5	Day shifts 6 days/wk
Emergency Medicine	1-2	Overnight shifts in 2 week blocks (5 nights on, 2 nights off)
TEACH	0.5	2 weeks call-free
Electives	2-3.5	8 wks every 4 <sup>th</sup> night call. 2 weeks call-free
Vacations	Two 2-wk breaks	---
Continuity Clinic, 2nd clinic or project		1.5 afternoons/wk on average





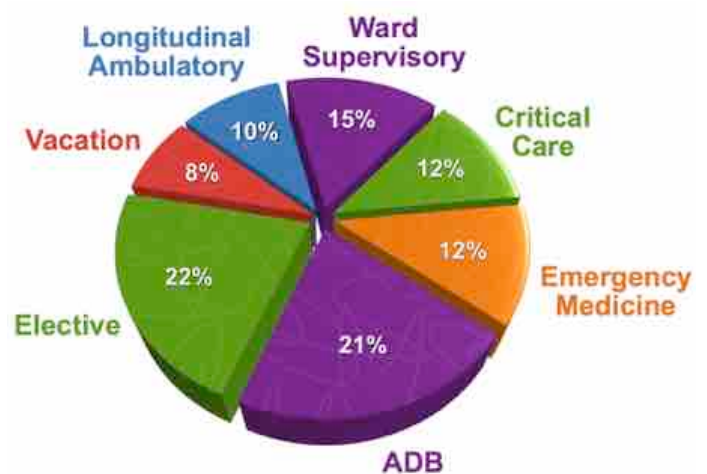
## BOSTON COMBINED RESIDENCY PROGRAM

### Categorical Track PL-3 Rotation Schedule

Service	Units 1U = 4 wk	Night/Weekend Call
Inpatient Supervisory Experience - Days (BCH Gen Peds, 7Subs, BMC Wards)	1-2	Two Friday calls, 2 Sunday day shifts
Inpatient Supervisory Experience - Nights	0.5-1	Night Float - 5 nights on, 2 nights off per wk
Critical Care (BCH MICU, BMC PICU, NICU)	1-2	Every 4th night
Elective/ Individualized Learning Time	2-3	6 weeks call-free, 6 weeks cross coverage (every 4th night call)
Emergency Medicine	1.5-2	Day and evening shifts
Academic Development Block (ADB)	3	1-2 months every 4 <sup>th</sup> night; 1-2 months Saturday calls (Gen Peds cross-cover)
Back-up	0.5-1	---
Vacations	Two 2-wk breaks	---
Continuity Clinic		1 afternoon/wk on average

### Urban Health and Advocacy Track PL-3 Rotation Schedule

Service	Units 1U = 4 wk	Night/Weekend Call
Inpatient Supervisory Experience - Days (BCH Gen Peds, 7Subs, BMC Wards)	1-2	Two Friday calls, 2 Sunday day shifts
Inpatient Supervisory Experience - Nights	0.5-1	Night Float - 5 nights on, 2 nights off per wk
Critical Care (BCH MICU, BMC PICU, NICU)	1-2	Every 4th night
Elective/ Individualized Learning Time	2-3	6 weeks call-free, 6 weeks cross coverage (every 4th night call)
Emergency Medicine	1.5-2	Day and evening shifts
Academic Development Block (ADB)	3	1-2 months every 4 <sup>th</sup> night; 1-2 months Saturday calls (Gen Peds cross-cover)
Back-up	0.5-1	---
Vacations	Two 2-wk breaks	---
Continuity Clinic, 2nd clinic or project		1.5 afternoons/wk on average



# Rotation Descriptions

### Keystone Quarter

The Keystone Quarter was formed in 2013 with the goal of unifying ambulatory experiences during the intern year. This rotation was the result of combined efforts of residents, faculty, and program leadership as part of the Residency Program Training Committee's overall re-design of the BCRP curriculum. The block consists of 12 weeks (split into two six-week blocks) of integrated Child Development, Advocacy, Adolescent and Primary Care experiences. A didactic lecture series compliments residents' outpatient clinic time and focuses on relevant topics ranging from clinical cases to advocacy issues. During the Keystone blocks, residents will manage pediatric medical problems over time, learn to navigate care delivery systems, and hone skills in the delivery of comprehensive medical care. Residents will complete a capstone advocacy project across their Keystone experience during the intern year. Aspects of the individual components that comprise Keystone are discussed below.

### Keystone — Child Development

Child Development is a joint rotation between Boston Children's Hospital and Boston Medical Center (BMC). The rotation is designed to provide residents with a rigorous foundation in normal and abnormal infant and child development. Interns and Med-Peds PL-2 residents gain exposure to multi-disciplinary clinical programs providing assessment and follow-up for infants, children, and adolescents with developmental, behavioral and/or learning problems. Residents participate in testing with developmental-behavioral pediatricians, psychologists and educational specialists. Given its prevalence and social impact, there is a special focus on autism.



Nonclinical experiences in child development provide wonderful adjunct opportunities and more complete appreciation for this important discipline. Residents participate in Early Intervention home encounters, visit the Children's Hospital

Childcare Center, and observe in classrooms, including special education settings and an elementary school in the Boston Public School system. Some also attend

special education evaluation meetings and special school events. Also, one morning a month, each intern attends the Comprehensive Care Program, a multidisciplinary primary care outpatient clinic for children with complex medical problems, including children with significant developmental delays, mental retardation, seizure disorders, autism, and former premature infants. Didactics at both BMC and BCH within the framework of the Keystone blocks augment the clinical experiences of this rotation and include topics such as developmental screening and surveillance in primary care, special education evaluations and services, mental health screening, failure to thrive, discipline, the child's experience of grieving and loss, and the child's experience of interpersonal violence.

### Keystone — Adolescent Medicine

A joint venture between the outpatient adolescent centers at Boston Children's Hospital and Boston Medical Center, the adolescent medicine portion of the Keystone block provides a solid foundation in the primary and specialty care of teenagers. Interns hone their skills in routine health maintenance for male and female patients, family planning, gynecologic care, and STD testing and treatment. Interns also gain skills in screening for substance abuse and responding appropriately to positive screens. During their adolescent medicine clinic time, interns are scheduled to see their own panel of adolescents and are precepted by adolescent medicine attendings. Specialty clinic experiences such as sports medicine, scoliosis, reproductive health and dermatology are incorporated into the Resident's daily practice. Additional experiences to increase understanding of the scope of healthcare for adolescents include: visiting a school-based health center (September-June) and a field trip with an attending to a residential treatment school for teenage girls. A comprehensive didactic curriculum focused on a variety of adolescent issues as well as effective implementation of evidence-based medicine will be covered over the course of the Keystone block.

### Admit

Admit is a two-week rotation for junior residents engineered to protect evening sign-out times for the general pediatrics teams at Boston Children's Hospital. Admit residents are scheduled from 4 pm to 9 pm five or six days a week and are responsible for taking ER and direct admissions during that time to allow safe pass-off of patient care for the other teams. Junior residents work directly with the nighttime admitting attending and pass off care of admitted patients to the primary night team.

## BOSTON COMBINED RESIDENCY PROGRAM



### Cardiology

BCRP junior residents spend one month as part of the inpatient cardiology team at Boston Children's Hospital. The service is composed of 4 primary residents in conjunction with two first or second year cardiology fellows and often several medical students covering the Cardiac Medicine, Heart Failure, Electrophysiology, and Pulmonary Hypertension teams.

The residents work closely alongside a separate team of nurse practitioners and both teams benefit from an administrative medical teams associate. Each resident has primary responsibility for the evaluation and management of patients with a wide range of congenital and acquired pediatric heart diseases, under the supervision of the cardiology attendings and fellows. Each resident rotating primarily on the cardiology service spends roughly five days in the outpatient clinic evaluating common and uncommon problems encountered in an academic cardiology practice. Daily didactic sessions presented by faculty cardiologists and geared exclusively to residents and medical students focus on core topics in pediatric cardiology from EKG reading and understanding cardiac catheterization data to care of patients with complex congenital heart disease.

### Complex Care Service (CCS)

Due to the increasing number of children with complex health care needs, Boston Children's Hospital has created an inpatient team and an outpatient clinic solely dedicated to the care of these children and their families. These patients have medical problems involving a minimum of three organ systems and often participate in cooperative multidisciplinary programs at Boston Children's Hospital such as the Myelodysplasia Program, the Cerebral Palsy Program and others. During the junior year, residents rotate for 2 two-week blocks on the inpatient CCS service composed of two residents, a nurse practitioner, a clinical nurse specialist, a CCS social worker and a CCS attending. Patients may be hospitalized for acute medical problems such as aspiration pneumonia or increased seizure frequency, or they may be admitted for intensive management of more chronic issues, such as progressive weight loss. Residents gain proficiency in assessing medication interactions and are exposed to a wide variety of medical devices including gastrostomy and jejunostomy tubes, tracheostomy tubes, urinary stomas, ventriculoperitoneal shunts, and Baclofen pumps. Because many patients need input from multiple subspecialty teams, residents learn to synthesize

consultant recommendations to deliver optimal care. A didactic lecture series provides education on the common problems that arise in children with complex medical disorders. Overnight, CCS juniors help to supervise interns on the pulmonary rotation, which adds more supervisory and teaching experiences to the junior year.

### Electives

Residents have about 4-5 months of elective time distributed between their PL-2 and PL-3 years. Approximately two months of this elective time will be call free. All pediatric residents must complete 7 months of subspecialty experiences. Because the BCRP curriculum incorporates several months of subspecialty experiences, residents may pursue a broad array of clinical and research interests during their electives, including rotations in complementary fields such as anesthesia, toxicology, transport medicine, international medicine, or surgery.

### Emergency Medicine

In all three years of the training program, residents are exposed to emergency/acute illness experiences at both Boston Medical Center and Boston Children's Hospital. Both emergency departments are access points for Emergency Medical Services (EMS) transports and ambulance traffic, and receive seriously injured and acutely ill pediatric patients.

Boston Medical Center is a busy Level 1 Trauma Center. The Pediatric Emergency Department (ED) provides 24 hour attending coverage by pediatric emergency-trained



***Dr Fleisher (right) on one of his shifts in the ED***



***ER patient checking Physician-in-Chief Gary Fleisher for dextrocardia***



## BOSTON COMBINED RESIDENCY PROGRAM

physicians, emergency medicine physicians, and 3rd year pediatric emergency medicine fellows. The BMC Pediatric ED treats approximately 30,000 patients a year, ranging in age from newborn to 22 years old. It receives more patients by EMS than any other pediatric facility in Boston. It has 12 fully equipped rooms for non-acute care, an acute care/observation area with 4 beds, and a trauma/resuscitation suite.



**Successful knee tap for Lyme arthritis in the ER**



**Exploring the pharmacokinetics of the chocolate bomb on GI**

The Emergency Department at Boston Children's Hospital is also a Level 1 Trauma Center and provides 24 hour attending coverage by pediatric emergency-trained physicians and by 3rd year pediatric emergency medicine fellows. The Children's ED sees more than 60,000 ill and injured children per year and has one of the premier fellowships in pediatric emergency medicine.

Resident responsibilities in both Emergency Departments include:

- Evaluation, management, and disposition of patients.
- Consultation and communication with other services and consultants.
- Discussion of cases with primary care and referring physicians.
- Performance of procedures (e.g., venipuncture, arterial puncture, spinal tap, laceration repair, abscess incision and drainage, foreign body removal, splinting, bag-mask ventilation).

Regular conferences occur at both Boston Medical Center and Boston Children's Hospital, including didactic lectures, mock codes, hands-on practical workshops, and simulations.



**Residents having fun during a mock mock code**



**Team Rounds**

### Gastroenterology

Three primary junior residents rotate through the gastroenterology service at Children's Hospital each month. The rotation incorporates both inpatient and outpatient experiences to maximize resident exposure to the full spectrum of gastroenterology care. The goals of this rotation include assessment of patients with gastrointestinal complaints, the diagnosis and management of common gastrointestinal disorders, and introduction to endoscopy and other procedures unique to this specialty. All residents attend a daily didactic series before rounds that includes a weekly fellow-run seminar and mini-lectures on basic subjects including gastro-esophageal reflux disease, constipation, malabsorption, the pathogenesis of diarrhea, the diagnosis and treatment of inflammatory bowel disease, nutritional assessment, total parenteral nutrition, the approach to abdominal pain, neonatal cholestasis, and the evaluation of liver disease.

On the inpatient service, two residents, a first-year fellow, a nurse practitioner, and a gastroenterology attending manage a variety of severe gastrointestinal illnesses.

Built into each month-long rotation are multiple outpatient experiences during which residents attend clinic and observe endoscopic procedures. Examples include Grow

## BOSTON COMBINED RESIDENCY PROGRAM



***Dr. Vinci's waffle rounds on the BMC Wards***

Clinic, hepatology clinic, IBD clinic, short-gut clinic, and new general GI referrals.

### General Pediatric Inpatient Services

Every intern has at least three months of general inpatient experience. Inpatient teams at Children's Hospital are typically unit-based, allowing closer relationships with nurses, more contact with families, and less time spent commuting between floors. During the junior and senior years, residents assume a supervisory role in the care of general pediatrics patients. Supervising residents are team leaders and provide much of the bedside teaching to the interns and medical students. Inpatient ward teams are divided into "day" and "night" teams.

The General Pediatrics and Subspecialty teams at Boston Children's Hospital care for patients with a wide variety of problems spanning the entire spectrum of pediatric pathology. Their make-up are:

- 9 East Gen Peds A and Gen Peds B: 1 senior resident (Gen Peds), 1 junior resident (Gen Peds B), a nurse practitioner, 4 interns, and up to 4 medical students
- 7 West Gen Peds C and subspecialty teams (Adolescent, Pulmonary, Endocrinology, Allergy/Immunology, Rheumatology): 1 senior resident, 1 junior resident, 4 interns, a nurse practitioner, and up to 4 medical students. Interns and residents switch between Gen Peds C and the subspecialties after 2 weeks.
- 6 East subspecialties (Hematology, Renal, Toxicology): 2 junior residents (1 on the inpatient service, one in outpatient clinics and consult services), 1 intern, and up to 2 medical students.
- Boston Medical Center Inpatient Wards: 1 senior resident, 1 junior resident, 3 pediatric interns. 1 family medicine intern, and 3-4 medical students on a 22-bed



***Work room snacks on Oscar Night***

unit. The pediatric ward team cares for general pediatrics patients and patients from subspecialty services, including endocrinology, gastroenterology, hematology, infectious diseases, neurology, and pulmonology.

### Intensive Care Unit

Residents gain experience in Critical Care Medicine during both the PL-2 and PL-3 years. All PL-2 residents complete a four-week rotation in the 30-bed Medical-Surgical Intensive Care Unit (MSICU) at Boston Children's Hospital. In the PL-3 year senior residents rotate as the sole resident in the 6-bed pediatric ICU (PICU) at Boston Medical Center and in the 22-bed Medical ICU (MICU) at Boston Children's Hospital.

The MICU is split into two teams composed of 2 residents or nurse practitioners, 1 critical care fellow and 1 critical care attending physician while the BMC PICU is composed solely of the senior resident and critical care attending.

In the Children's MSICU, junior residents serve as primary providers for medical and select surgical patients. They



***Practicing procedures***

attend morning conferences and radiology rounds as part of a comprehensive didactic curriculum that includes formal mock code sessions delivered in the sophisticated simulator suite. Attendings conduct formal debriefings after mock codes using video footage to enhance feedback. There are also



## BOSTON COMBINED RESIDENCY PROGRAM

weekly sessions focused on procedures and emergency scenarios, with the assistance of simulation.

During the senior year ICU experiences (BCH MICU and BMC PICU), the senior resident works directly with the supervising critical care attending or fellow.

These experiences help residents develop crucial decision-making skills. Building on concepts introduced in the PL-2 year, residents gain proficiency in the management of severe status asthmaticus, mechanically ventilated patients, hemodynamically unstable patients, patients with dangerous ingestions or toxic exposures, and patients in status epilepticus among many others. Residents also participate in advanced vascular access, airway management, and delivery of emergency medications. Faculty didactics complement the experiential learning on each unit.

### Intermediate Care Program (ICP)

The ICP is a 12-bed unit on the 9 South ward at Boston Children's that cares for patients who require more intensive nursing than can be provided on the floors. Commonly encountered disorders include diabetic ketoacidosis, severe status asthmaticus, complex medical patients requiring intensive respiratory monitoring or



**Juniors serve as Team Leaders in the ICP**

noninvasive ventilation, and significant electrolyte abnormalities (such as diabetes insipidus) requiring close monitoring and frequent blood analyses.

The service is split into two teams, each with one senior resident, one intern, and one nurse practitioner that covers half of the unit (six patients). Both teams share the same attending. 1 junior resident and 1 intern staff the ICP at night. The nursing staff (who care for 1-2 patients each) and dedicated respiratory therapist participate actively in morning and night rounds. An interdisciplinary approach is emphasized. Given the intimate structure of the team and the higher acuity on the unit, many formal and informal

teaching opportunities arise. Daily didactics focus on topics such as management of DKA, airway obstruction and respiratory compromise.

### Newborn Care: Neonatal Intensive Care Unit, Newborn Nursery and Delivery Room

#### PL-1 year: Newborn Nursery

Interns rotate on either the well newborn hospitalist service at Brigham and Women's Hospital or the Birth Place Newborn Care Service at Boston Medical Center.



**NICU duty**

Interns are responsible for the evaluation and management of healthy newborns with the help of nurses and lactation specialists, and under the guidance of an attending pediatrician. Interns also attend didactic lectures, discussion sessions and demonstrations that focus on care of the newborn.

#### PL1 and Supervisory Years: Neonatal ICU

Interns and residents rotate through the NICU at Brigham and Women's Hospital (BWH) and Boston Medical Center (BMC). The BWH NICU is a 64-bed unit divided into two 16-bed acute care pods, and two 16-bed intermediate care pods. Interns in the BWH NICU take q4 24-hour call and spend the majority of their time in the NICU caring for neonates in one acute care pod where they are supervised by a NICU fellow and attending physician. They also spend about 4-5 days caring for non-critically ill neonates in the short stay unit.

The BMC NICU is a 22-bed unit and the team consists of an attending neonatologist, one senior or junior resident, and two interns. There is no night call in the BMC NICU for interns and the unit is covered by a junior or senior resident at night.

Besides caring for critically ill neonates, residents obtain extensive experience in the resuscitation and stabilization of newborns at high-risk deliveries. At both sites neonatal attendings are on site 24 hours per day to provide supervision and teaching. Residents participate in a comprehensive educational curriculum including daily lectures by attending neonatologists covering common neonatal problems, such as respiratory distress syndrome, necrotizing enterocolitis, hyperbilirubinemia, and nutrition. All residents are trained in the Neonatal Resuscitation Program (NRP) during intern orientation and then re-certify during their PL-2 year.



## BOSTON COMBINED RESIDENCY PROGRAM



***Halloween on the Oncology Service***

During the junior year residents rotate through the BWH NICU as the “DR1” delivery room resident — the first call to all deliveries requiring a pediatrician. The resident is responsible for attending deliveries with a NICU nurse and respiratory therapist, and for triaging newborns in the delivery room and well baby nursery.

Residents in both years recruit newborns from their newborn rotations to their continuity patient panels in their outpatient clinics.

### **Oncology**

Inpatient oncology care at Boston Children's is delivered by disease-specific teams: two hematologic malignancy teams, the solid tumor team, and the neuro-oncology team. There are two hematologic malignancy teams, one with an oncologist, a fellow and two residents, and the other with an oncologist and 2 nurse practitioners. The solid tumor team is composed of two residents, 1-2 nurse practitioners, a fellow, and an oncologist. The neuro-oncology team is primarily covered by a nurse practitioner



***Practicing on Asthma Day***

although residents will spend a day on the team during their Oncology block. Residents care for patients with new cancer diagnoses, complications of malignancy or cancer-directed therapies (including febrile neutropenia), relapsed malignancy, and concurrent medical problems. Goals of the rotation include: understanding common presentations of childhood cancer, management of oncologic emergencies, effective communication with families, management of febrile neutropenia, and identification and management of common complications of chemotherapy. The rotation also allows residents to gain an understanding of issues related to end-of-life care in a pediatric population. This rotation is augmented by daily didactic teaching sessions by oncology fellows and attendings, tumor boards and an outpatient experience in the Jimmy Fund Oncology Clinic at the Dana Farber Cancer Institute.

### **Primary Care**

The newest rotation in the BCRP, the two-week junior year Primary Care immersion block was created in response to requests from residents for more contiguous outpatient time during a busy, mostly inpatient junior year. Residents hone their skills as primary care pediatricians by spending additional time in the continuity care clinics, attending multiple primary care-focused outpatient experiences, and precepting medical students during urgent care shifts. Select outpatient experiences include telephone triage for primary care clinic, audiology clinic, gastrostomy tube clinic, growth and nutrition clinic, lactation clinic, NICU follow-up clinic, and young parents program.

### **Pulmonary**

Interns spend 1 or 2 months of the PL-1 year on the Pulmonary service. The inpatient Pulmonary team consists of four interns, a pulmonary fellow, a nurse practitioner with expertise in the care of pediatric



***Dr. Leslie Lehmann (right) and nurses in the Stem Cell Transplantation Unit***

## BOSTON COMBINED RESIDENCY PROGRAM

pulmonary patients, and an attending. Interns are primarily responsible for pulmonary patients with a wide range of conditions including complicated asthma, interstitial lung disease, pulmonary hypertension, cystic fibrosis, as well as issues surrounding lung transplantation. Pulmonary fellows and attendings teach a morning curriculum Monday through Friday. Interns spend a week of the month in the outpatient pulmonary clinic evaluating and managing new patients. Afternoons during this week are spent in the PFT lab, performing consults, or participating in procedures such as sweat tests and bronchoscopies. Interns take q4 24-hour call during this rotation.



**Teaching practice**

### Stem Cell Transplantation

Most junior residents spend a two week, call-free block as part of the 13-bed inpatient hematopoietic stem cell transplantation (SCT) team at Boston Children's Hospital. This is an opportunity to take responsibility, under the supervision of a fellow and attending, for patients preparing for and recovering from autologous or allogeneic transplants and those readmitted for complications following SCT. Rotation goals include: understanding the indications for SCT, donor selection, anticipated complications and time course relative to transplant, long-term effects of transplant, and the psychosocial challenges faced by children and families undergoing intensive therapy and long hospitalization. Besides the junior resident the team members include: a SCT attending, one first-year fellow, a nurse practitioner, and a pharmacist. The overnight call is covered by a

heme/onc attending or fellow. The resident and nurse practitioner evenly divide the patients and are responsible for pre-rounding, presenting on rounds, writing daily notes, reviewing all radiologic and pathologic studies and running weekly family meetings. The rotation includes daily morning teaching sessions, a weekly SCT staff development conference and the Longwood Medical Area SCT conference.

### TEACH

TEACH is a two week rotation for junior residents focused on developing supervisory skills and didactic and clinical teaching skills. It is call free with some scheduled activities (including delivering a chalk talk, leading a noon conference, practicing feedback and precepting medical students) balanced with flexibility to allow individualization of each resident's career goals. Residents receive guidance from a mentorship pair consisting of a faculty member and a Chief Resident.

### Night Call and Night Float Teams

Patients admitted to each of the general pediatrics services at Boston Children's and BMC receive care at night from a dedicated "night team" consisting of an intern and supervising resident. Each "night team" rotation lasts two weeks, affording the team continuity of care and consistency between the intern and the supervising resident. On average, interns have two 2-week "night team" rotations on a general pediatric service over the course of the year. On-call rooms and meal allowances are provided for house officers on night duty.

### Extended Shifts

For junior and senior year rotations that do not employ "night teams", residents take in-hospital call every 4th night. On-call rooms and meal allowances are provided



**Residents on call on New Year's Eve**



**Residents become close to their clinic families**



## BOSTON COMBINED RESIDENCY PROGRAM



***Hard at work in the Children's Hospital Primary Care Clinic***

for house officers on call at all three hospitals. All rotations in the BCRP are in full compliance with the ACGME work hour regulations.

### Longitudinal Ambulatory Experiences

#### Primary Care Experience

Longitudinal primary care clinic experiences at a variety of urban sites allow BCRP residents to foster the physical, intellectual and emotional growth of their own panel of patients, as well as to manage the course of certain diseases and therapies over an extended period of time. Residents care for children of all ages and children with diverse medical problems.

Continuity sites are available in hospital and community settings as well as a limited number of private practice locations. From the primarily Spanish-speaking clinics at Martha Eliot Health Center and East Boston Neighborhood Health Center to the Young Parent Program (YPP) continuity clinic at Boston Children's Hospital, residents may choose to tailor their longitudinal experiences based on their interests while enjoying exposure to a diverse, multi-cultural patient population.

Residents in the Categorical track devote one afternoon each week throughout the three years to their primary care practice. Similarly in the first year, Urban Health and Advocacy track (UHAT) residents spend one afternoon each week in their continuity sites. Throughout the second and third years of residency, UHAT residents select an additional half-day experience to augment their scholarly or advocacy interests; these may take the form of a second continuity clinic or "project" afternoon.



***Elective in Kenya. Sometimes hoofbeats are zebras***

### Longitudinal Subspecialty Experience

The BCRP is invested in developing a longitudinal subspecialty experience whereby residents can achieve early and sustained exposure to outpatient subspecialty medicine.

During the PL-3 year, residents may choose to participate in a longitudinal subspecialty clinic in place of their primary care clinic. In 2018-2019 residents will participate in longitudinal subspecialty experiences at both affiliated hospitals in subspecialties including cardiology, gastroenterology, hematology, and rheumatology, and with the critical care, anesthesia, perioperative, extension (CAPE) team.

### Electives and Funding Sources

Many different elective opportunities are available at both Children's Hospital and Boston Medical Center, including experiences in clinical care, research, medical education, clinical outcomes and advocacy. In addition, residents can select a variety of international experiences.

Residents may apply to a variety of competitive scholarships to further support their elective and research pursuits (see table). Examples of available scholarships are outlined in the table below. Of note, the number per year and amount granted varies from year to year. The Department of Medicine at Children's Hospital and the Department of Pediatrics at Boston Medical Center award scholarships for travel to national meetings such as the American Academy of Pediatrics, the Pediatric Academic Societies, and the meetings of subspecialty societies. UHAT residents are granted \$1000 annually to invest in tools and experiences that contribute to their pediatrics



## BOSTON COMBINED RESIDENCY PROGRAM

Funding Sources for Residents							
Award	Granted By	Eligibility	Description	Time Frame	Amt.	No.	Contact
Alumni Association Travel Award	Alumni Association	Residents and fellows. Only one nomination per program	Expenses associated with attending a scientific meeting	Spring	\$1,000	4	Jane Newburger
Farley Award	MSEC	Residents and fellows. Must be nominated by Div Chief	Deserving housestaff as a hospital contribution to the std salary and benefits for their PGY level	Spring	\$5,000	10	Justin Laughton
Global Health Travel Award	BCH Global Health Dept.	Residents and fellows	Travel to direct clinical care, education, mentorship or to participate as part of a larger program	March & Oct	~\$2,000	Unk	Christiana Russ
Harvard Macy Course for Trainees Scholarship	Harvard Macy Program	Residents or fellows who are strongly committed to an educational career in the academic health professions and have at least 1 year of post-graduate training.	Participants with at least one year remaining in their training program		Tuition Cost (\$1,800)	Varies	Alan Leichtner
Lovejoy Research Award	BCH Dept of Medicine	BCRP residents	Research project	Spring & Fall	Varies	Varies	Elayne Fournier
Palfrey Advocacy Fund	General Pediatrics/ Global Health		For local or global advocacy projects to improve child health		\$2,500	2	Christiana Russ
Paul Schliesman Memorial Award	BCH Dept of Medicine	BCRP residents	Travel to a third world country to work in primary care	June	\$400-\$1,000	Varies	Ted Sectish
PSQ GME Trainee Education Committee QI Grants	PSQ GME TEC	Residents or fellows in any program. Medical students working with a resident or fellow	For trainees to initiate new PSQI projects or enhance existing projects	Feb, June, Oct	Actual costs up to \$5,000	Varies	Teri Noseworthy and Mari Nakamura
Von L Meyer Travel Award	MSEC	Residents or fellows in an ACGME accredited program	Educational travel for study in any specific area of individual interest	Late Fall	\$500	Varies	Justin Laughton
Work/Family Balance Fund	BCH Dept of Medicine	BCRP residents	For work/life balance of residents who have financial needs or family activities	Sept	Varies	Varies	Ted Sectish

education, including costs incurred from clinical electives or to support research and community projects.

## Individualized Curriculum

Each resident will have six months of an Individualized Curriculum consisting of three months of the Academic Development Block and three months of other rotations relevant to his or her future career. The six months are distributed approximately as follows, with some variation from year to year:

PL-2 Year: 1.5 to 2.5 months

PL-3 Year: 4.5 to 5.5 months (includes 3 months of ADB time).

### Mentoring and Individualized Curriculum

Each BCRP Academy is supported by a group of faculty members who have demonstrated an interest in serving as mentors and advisors for residents within the Academies.

## Academic Development Block

One of the standout corner stones of the BCRP curriculum is the Academic Development Block (ADB), an innovative, multifaceted experience for PL-3 residents to explore and foster their academic interests. This 3-month rotation is unique to the BCRP and is designed to allow residents to customize their training to attain the skills, experience and knowledge necessary to further their careers. The ADB contains a core seminar curriculum and allows significant dedicated time for individualized mentored research, education, quality improvement or advocacy projects.

The core curriculum, delivered in the first week of each block, is designed to augment knowledge gained during the first two years of residency and is directed towards fostering lifelong learning and skills-building; topics range from discussions about critical appraisal of the medical literature, understanding health care for children in the context of local, state and federal policies, and navigating academic promotion systems. It focuses on skills such as:

## BOSTON COMBINED RESIDENCY PROGRAM

- Creating and applying new knowledge — research study design, biostatistics, epidemiology, evidence-based medicine, literature searching and human subjects considerations for children.
- Health care policy and environment — health care disparities, economics and funding, delivery systems, and resource allocation.
- Molecular Medicine — future “hot” areas of basic science research.
- Organization and quality of care — quality improvement, patient safety, and legal issues in the practice of medicine.
- Career-building – writing your CV, negotiating your first job, exploring avenues for future research funding.

These sessions are led by expert faculty from both institutions and include basic and clinical researchers with interests in translational medicine, clinical and outcomes research, public policy and advocacy, and medical education.

The second major component of the block is protected time for residents to focus on research, medical education, or QI projects, community advocacy experiences, or more in-depth, individualized clinical experiences. Residents meet individually with faculty mentors two or more months before the start of ADB to design their projects and organize their time. Senior residents have used their ADB time in a wide variety of ways to explore career alternatives, start or complete a primary research project, or lead a unique endeavor that will enhance and expand their training (and that often contributes to the training of other residents). The diversity of ADB activities reflects the diversity of interests and career paths of our residents.

Over the past six years, the results from approximately half of the projects have been presented at national meetings and/or culminated in a peer-reviewed publication.

### Examples of Recent Projects

- Quality improvement project to ensure limited English proficiency families have access to in-person interpreters on family-centered rounds.
- Design of a smartphone app to summarize foundational primary literature in pediatrics for use by supervising residents to enhance teaching.
- Estimating the financial burden of accidental buprenorphine ingestion.
- Retrospective review of cases of aspiration pneumonia in the emergency room setting.

- Investigation of yield of lumbar puncture for meningitis following status epilepticus
- Weight perception and unhealthy weight control behaviors among gay, lesbian and bisexual youth
- Examination of fatty acid binding protein 4 expression in lymphatic malformations
- Retrospective study of risk factors for fatal and non-fatal pediatric firearm injuries in the United States
- Study of vaccine coverage and parental attitudes on immunization in India
- Retrospective clinical review combined with blinded bone marrow re-review to define clinical predictors of failure for patients with aplastic anemia treated with immunosuppressive therapy
- Investigation of seroconversion rates following double dose hepatitis B vaccine among HIV-infected children and adolescents
- Review of colonoscopies to determine agreement between endoscopic assessment of mucosal findings and pathologic findings on biopsy
- Genomics/proteomics approach to characterized differences between adults with acute myelogenous leukemia
- Summary of common practices in diagnosis and treatment of malaria in Nigeria
- Examination of methylenetetrahydrofolate dehydrogenase 2 as a target for treatment in acute myelogenous leukemia
- Chart review on aortic regurgitation after interventions for aortic stenosis in staged palliation of hypoplastic left heart syndrome
- Discovery and validation of role of mobile genetic elements in malignant rhabdoid tumors
- Evaluation of a sign out system and intervention aimed at improving pass off of care among residents
- Educational trial examining different methods of teaching simulation and development of longitudinal residency simulation curriculum
- Completion of a study of procalcitonin as a test for serious bacterial infection among febrile infants
- Investigation of blood product exposure and clinical outcomes in PICU patients requiring ECMO
- Development of a pediatric training curriculum in Liberia
- Effect of hydroxyurea on emergency department visits in patients with sickle cell disease
- Study of long-term pulmonary artery stenosis after repair of aberrant pulmonary artery in infancy
- Effect of cranial radiation on growth hormone and parathyroid hormone abnormalities.
- Prognosis following lung transplantation

## BOSTON COMBINED RESIDENCY PROGRAM

- Prospective multi-center study of bronchiolitis admissions
- Health needs assessment of orphaned children in Malawi

## Education

### Education First

Education is a priority in the BCRP. From Grand Rounds by world-renowned specialists to impromptu overnight clinical instruction, teaching and learning permeate all aspects of residents' daily lives. At both BMC and BCH, there are daily protected teaching rounds and noon conferences that foster discussion and debate between residents and faculty. Through Family Centered Work Rounds, residents benefit by learning directly from senior faculty, fellow residents, and their patients at the bedside.

Residents are also given the opportunity to learn to teach right from the start, cultivating their skills as teachers and reinforcing their own knowledge through the art of teaching. Our Boston University and Harvard medical students consistently identify residents as one of the most important sources of instruction. As part of our commitment to case-based teaching, residents supervise medical student patient encounters all the way from the initial history through the presentation on rounds.

### Resident Involvement in Curriculum Design

Through the Residency Program Training Committee and the Medical Education Academy, resident feedback and input are driving forces behind changes in the curriculum, which is evolving to meet the educational needs of the residents. Recent resident-led innovations in the BCRP curriculum include restructuring the oncology subspecialty junior year rotation in order to enhance the on-service educational experience, developing a TEACH elective, creating an Admit rotation to protect sign-out time for inpatient residents while allowing increased autonomy, developing a Primary Care rotation for the junior year, creation of a racial justice seminar, and revision of the BCRP handbook which provides comprehensive review materials for residents, and more.

### Educational Opportunities

Below are brief descriptions of the daily educational opportunities that have been built into the residency. This collection of case presentations, conferences and lectures work in conjunction to augment the learning that occurs organically through patient care. While this list is relatively comprehensive it is certainly not exhaustive. Residents



*Residents work closely with senior faculty*

can always avail themselves of the multiple educational opportunities within Harvard, Boston University and the city of Boston itself.

### Medical Grand Rounds

Weekly Grand Rounds at both institutions provide exposure to leading clinicians and researchers providing cutting-edge information about their areas of expertise. Grand Rounds features topics from multiple areas of medicine including clinical topics, basic science research, global health, social determinants of health, narrative medicine, and public policy.

### Conferences - Boston Children's Hospital

#### BCH Noon Conferences

Based on feedback from residents, the Medical Education Academy revamped the noon conference curriculum over the past few years. The curriculum now features two-week subspecialty blocks, with each noon conference covering a topic within the specific subspecialty. The sessions are given by a combination of residents, chief residents, fellows known for their excellent teaching skills and expert faculty. Conferences employ a wide variety of



*Dr. Sectish attending and teaching on Gen Peds*



## BOSTON COMBINED RESIDENCY PROGRAM



***All noon time core conferences have a free lunch***

educational formats, including traditional didactic teaching, case-based learning, hands-on/skills sessions, and educational games. A fantastic lunch is provided daily. There are daily e-mails sent out with a boards prep question relevant to that block's subspecialty, and at the end of each two-week block.

### **Senior Rounds**

This daily conference is perennially one of the highest rated educational experiences at the BCRP. A chief or senior resident is charged with presenting a recently admitted patient with an unusual or unknown diagnosis. A discussion between the residents and senior faculty follows, with a focus on differential diagnosis, management and prognosis, as well as nuances in the individual case, which frequently prompt significant discussion. Priorities include developing generalizable lessons from unusual cases as well discussing unusual presentations of common diseases. Faculty from different specialties attend on different days, and are invited at the beginning of the year by the chief residents (considered a true honor by faculty).

### **Morning Report**

This is a weekly conference on Friday mornings that occurs in place of Senior Rounds. One of the senior residents currently on general pediatrics night float presents an interesting patient admitted during the past week. He or she leads an informal discussion among interns, residents, chief residents and faculty focusing on diagnosis and management. While the conference does not always yield a diagnostic or therapeutic solution, the discussion often aids in the patient's care.

### **Intern Report**

This is a very popular conference one morning a week exclusively for interns. An intern presents a case and



***Residents learn how to splint at noon conference during the orthopedics subspecialty block***

leads a discussion on differential diagnosis, work-up and management. A chief resident attends to participate in the discussion as well.

### **Subspecialty Conferences**

While on certain rotations – pulmonary, GI, cardiology, oncology, ICP, and MSICU – residents attend daily morning lectures organized by that department. These sessions are led by the subspecialty fellows or faculty and cover a range of topics within that subspecialty.

## **Conferences – Boston Medical Center**

### **BMC Noon Conferences**

Noon Report at BMC occurs daily and the curriculum parallels the two-week subspecialty blocks described above in BCH Noon Conference. Similar topics are covered simultaneously at both hospitals, so residents will have comparable learning no matter what rotation they are on. Chief residents and expert faculty lead the sessions. Residents can draw from the experiences and knowledge of the many senior faculty members who attend. Conferences employ a wide variety of educational formats, including traditional didactic teaching, case-based learning, hands-on/skills sessions, and educational games. Monthly, interns at BMC attend Intern Report, a case-based conference moderated by a Chief Resident, while junior and senior residents attend the Leadership Series, aimed at developing supervisory skills in the clinical setting. Simulation and mock codes are incorporated frequently. A delicious lunch is provided daily.

### **Case of the Week**

This weekly presentation at Boston Medical Center is organized and moderated by senior residents. The cases are current or recently discharged patients chosen to

## BOSTON COMBINED RESIDENCY PROGRAM

illustrate specific topics. The resident selects the case and works with a subspecialty faculty member(s) to develop the conference. All residents rotating at BMC, as well as the pediatric faculty, attend the presentation.

### Morning Report

This morning conference occurs three times per week. On Monday mornings, the night team presents an interesting admission from overnight and leads a discussion on differential diagnosis, work-up and management. On Tuesday and Wednesday mornings, there are lectures for the interns focused on general pediatrics topics.

### Monthly Conferences

#### Research, Advocacy, and Policy (RAP) Series

RAP is a monthly seminar organized by senior residents for UHAT residents. UHAT residents have protected time to attend these sessions and are freed from their clinical duties for the afternoon when their schedule allows. The seminar topics vary based on senior resident interests, and they invite community leaders to speak with and teach residents. Past topics have included lobbying and health policy, featuring a Massachusetts lobbyist to run a skills session on effective communication with members of Congress. Another topic highlighted youth violence in the Boston area, inviting Street Smart, a local organization that works on the ground with high-risk youth to prevent instances of violence. Another focused on research in obesity using geo-mapping to identify food deserts and high-risk areas of obesity. The RAP series is one of the UHAT residents' favorite seminars of the year, highlighting work that residents are passionate about in addition to introducing community and national leaders to our residency.

#### Basic Science Journal Club/Seminar

In this monthly conference, a resident selects a basic science article that illustrates a fundamental advance and has translational implications. He or she prepares a seminar designed to teach broadly about the topic as well as focus on the article or articles distributed in advance. One or two experts from the Boston area are selected by the presenter and invited to sit in and contribute to the discussion. Examples of recent topics include: highly specific new anesthetics, pitfalls in analysis of genomic data, auto-inflammation from escaped DNA, genomic screening for autism, microRNAs, diabetic autoimmunity, peptidomimetics, long QT syndrome, use of gene expression in new drug discovery, gene editing, and the molecular basis of gastrointestinal development.

#### Clinical Science Journal Club/Seminar

Similar to the Basic Science Journal Club, the Clinical Science Journal Club is a monthly conference, moderated



***Residents teach at Basic Science and Clinical Science Journal Clubs***

by a resident, who selects and presents a clinically based research article with support from specific faculty. He or she prepares a seminar on the topic designed to foster a larger discussion of evidence-based clinical decision making. Besides discussing the clinical material, each session focuses on a specific biostatistics topic. Examples of recent topics include: a new targeted therapy for certain cystic fibrosis gene mutations, acyclovir after neonatal herpes, and screening for neuroblastoma.

#### Humanism Curriculum

Developed by one of the previous senior residents during her academic development block, this monthly seminar series for the interns and junior residents focuses on many of the difficult issues that physicians encounter regularly. Residents are assigned to a small group and a faculty preceptor with whom they meet throughout the year. The seminars focus on issues such as the difficult patient or family, balancing work and home life, dealing with death and dying, medical errors, and cultural diversity in medicine.

#### Resident-as-Teacher

The BCRP emphasizes the vital role that residents play in teaching medical students from Harvard and Boston University Medical Schools during their pediatric clerkships and other residents during supervisory rotations. This important role in teaching helps prepare residents for their future careers as educators to colleagues and patients. To help residents become successful in these roles, educational sessions during rising intern, junior and senior orientations and during program-wide retreats are dedicated to exercises on effective teaching, such as teaching at the bedside, use of the "one minute preceptor", giving effective feedback, and delivering effective presentations.

In addition, a formal TEACH elective has been developed for junior residents. During this elective, residents learn about adult learning theory and practice many methods of

## BOSTON COMBINED RESIDENCY PROGRAM



***Residents spend a lot of time teaching Harvard and BU students one-on-one***

teaching, including leading senior rounds, chalk talks, and bedside physical exam rounds. They will also develop their supervisory and feedback skills, with hands-on experience, including precepting medical students in the primary care setting. Residents are also paired with a faculty mentor and chief resident who are dedicated to giving constructive feedback on their teaching methods and helping them discover their supervisory style.

Finally, residents take the lead in presenting at many of our conferences, including Senior Rounds, Morning Report, Intern Report, Basic and Clinical Journal Clubs, Health Equity Rounds, and in selected Grand Rounds. These programs and experiences contribute to an atmosphere in which teaching is highly valued. As a result, medical students from both institutions regularly recognize members of our housestaff with accolades and formal teaching awards.

### **Leadership Seminar**

Historically, medical schools and residencies have not given residents adequate skills and teaching to become great managers and leaders. At Boston Medical Center, junior and senior residents participate in a monthly leadership seminar to help develop qualities inherent in strong, effective leaders: self reflection/self awareness, conflict resolution-feedback and vision. It is designed to be case-based, interactive, and relevant to the needs of the pediatrics residents.

A longitudinal leadership curriculum has also been developed to formally train residents to be leaders in the field of pediatrics, both clinically and in career-specific interests. Residents will learn about leadership theories, explore concepts in social and emotional intelligence, and acquire skills in negotiation and managing teams.



***Chief resident teaching at student's conference***

### **Retreats**

Semiannual, day-long, house staff retreats allow residents to reflect on their clinical experiences and on the training program and to obtain new skill sets. Topics have ranged from how to start a leadership curriculum to how to start a formal resident wellness program, as well as other initiatives through the BCRP Academies. Many important and substantive changes have resulted from these retreats. Interns also attend a protected 2-day retreat in the fall of their intern year to allow for class bonding time. There are also rising junior and rising senior full day retreats in the springtime that cover topics for the upcoming year.

### **Simulators**

Boston Children's Hospital has invested in large, amazing, state-of-the-art, high-fidelity simulator programs to optimize learning in the acute care setting. Children's Simulator Suite is a faithful reproduction of an intensive care unit bed space. The suite is outfitted with gas outlets, medical equipment, and both pediatric and infant patient simulators. Next to the simulated patient room is a video control room linked to a conference room through closed circuit cameras for video-based debriefing sessions. The PL-2 year ICU rotation features weekly mock codes led by the residents with video debriefings. In addition, there are frequent procedure sessions led by the ICU fellows to practice procedures such as intubation, central line placement, and chest tube placement.

At BMC, simulation sessions occur either in a similar simulation suite or in the PICU by using a portable SimBaby, which can simulate a range of conditions and enables a number of procedures from intubation to IV placement. The PICU senior and chief residents develop a weekly mock code for the ward team, which starts with interns learning to use basic equipment and progresses to the ward junior running a complex cardiac code. Recent



## BOSTON COMBINED RESIDENCY PROGRAM



*Practicing in the simulator suite*

cases have included severe myocarditis and status epilepticus.

Given the importance and complexity of running a code well, the practice of mock codes is not restricted to ICU rotations. They are scheduled throughout the intern, junior and senior years. The focus is on increasing skill level over time, knowing how and when to call for help and importantly, the basics of good communication in running a successful code.

### Role of Fellows

Many of the fellowships at Boston Children's Hospital are the best in their specialty, and the hospital has many fellows who are exceptional clinicians, teachers and individuals. They provide invaluable assistance in teaching about and caring for complex patients. Fellows are not residents, however, and they do not assume resident roles. Most residents feel that the fellows are an integral part of their education and augment their clinical experience through dedicated and impromptu teaching sessions. While all subspecialty services have fellows as part of the care team at BCH, there is minimal fellow presence at BMC with a few exceptions (ID, Neurology and Emergency Medicine departments).

### Libraries

**The Children's Hospital Library and Archives** have recently moved to the 5th floor of the Longwood Center at the corner of Brookline and Longwood Avenues, midway between the hospital and the clinical research complex on Autumn Street. It is a quiet respite with private carrels,



*Desks with a view at the new Children's Hospital library*

computer work stations, collaboration rooms for 6 to 10 people with AV capacity for presentations, and other work and reading areas. The library offers a wide range of services including various databases, Up-To-Date, End Note, Mendeley, many electronic journals, free copying, scanning and printing facilities, and interlibrary loans. Laptops are available for loan. Staff librarians can assist you with performing complex literature searches, whether for immediate patient management or for ongoing research. They also offer introductory seminars on the use of EndNote, Mendeley, and PubMed for interested residents.

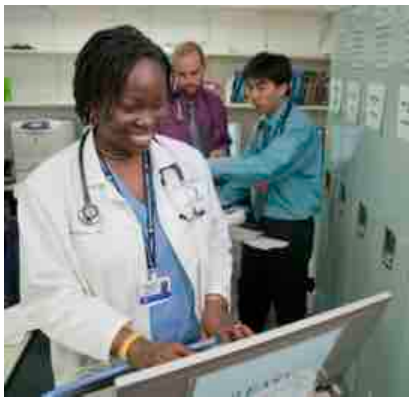
**The Francis A. Countway Medical Library at Harvard Medical School**, next door to Children's Hospital, is one of the world's largest medical libraries. The library holds over 630,000 volumes, subscribes to 3,500 current journals, of which over 1,500 are available in electronic form, and houses over 10,000 non-current journal titles. All the library's resources are available to residents, and all electronic journals articles can be downloaded as pdf files. Many electronic textbooks and other electronic databases, such as MD Consult are also available to BCRP housestaff. All electronic resources are available over the internet from home. The Countway also offers access to the extraordinary library resources of Harvard University and an exceptional History of Medicine collection.

**The Boston University School of Medicine Alumni Medical Library** is a state-of-the-art library that serves the faculty, staff and students of the Boston University schools of Medicine, Dental Medicine, Public Health, and the Boston Medical Center. Besides its excellent medical collection, it has over 1500 online journals and 30 current, clinical electronic textbooks available to all residents.

## Medical Information Systems

Timely retrieval of clinical information is a priority for house officers. An integrated electronic hospital information system is available at both institutions to provide state-of-the-art information management. All vital signs and flowcharting, imaging, laboratory results, diagnostic studies, documentation by all outpatient and inpatient clinical services, physician orders, prescriptions,

## BOSTON COMBINED RESIDENCY PROGRAM



**Information management is state-of-the-art**

and drug formularies as well as some decision support capabilities exist in our electronic health records (EHR). Children's Hospital recently received HIMSS Analytics Stage 7 award for being completely paperless, putting it in rare company.

Integrated email and paging systems facilitate communications across both sites. Residents play an important role in the implementation of the EHR and the improvement of these systems.

Highly secure remote access to both the Boston Medical Center and Children's Hospital systems is available to all residents 24 hours per day, including records, lab results, radiology images, and paging. In addition, the BCRP website provides password-restricted access to useful information for residents such as colleague contact information, rotation survival guides, upcoming schedules and announcements, and a database of useful articles and presentations.

## Research

### Boston Children's Hospital

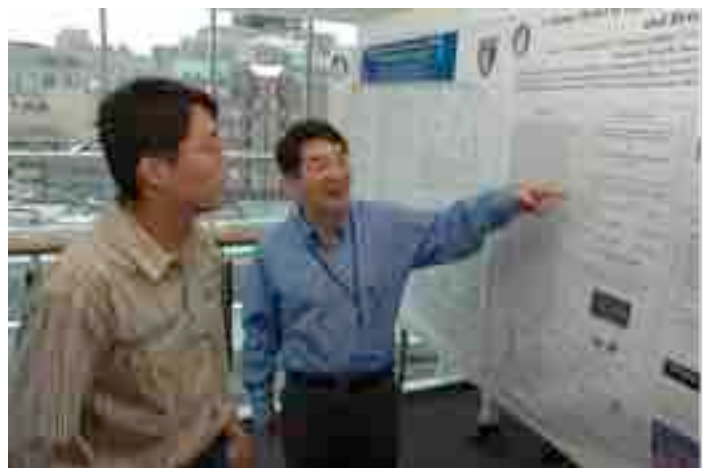
Children's is home to the world's largest and most active pediatric research enterprise and one of the largest research programs of any independent hospital. The hospital has more than \$300 million in research funding per year and more than 750,000 square feet of state-of-the-art laboratory space. The research mission of Children's Hospital encompasses basic research, clinical research, community service programs and the training of new scientists. More than 500 investigators, including 8 members of the National Academy of Sciences, 20 members of the National Academy of Medicine, 23 Fellows of the American Academy of Arts and Sciences, and 11 members of the Howard Hughes Medical Institute (HHMI) are part of Children's truly extraordinary research community. Two recent HHMI Investigators relinquished their positions to become Dean of the Harvard Medical School (George Daley) and Scientific Director of HHMI (David Clapham). Four Children's investigators have won the Nobel Prize and six have won the nearly equally prestigious Lasker Award.

### Boston Medical Center

BMC is nationally recognized for clinical, health services, and policy research as it relates to low income and minority children. Areas of research include child development and early literacy, perinatal epidemiology, gene-environment interactions and low birth weight, the impact of policy, such as welfare reform, housing and nutrition on health, prenatal drug exposure on child health and development, HIV/AIDS in children, the use of information technology to improve quality, environmental health and international and immigrant health.

### Quality of Research

The quality of the research done by Children's Hospital and Boston Medical Center faculty is especially impressive. During the ten years from 2006 to 2015, researchers from Children's published more than 7 times as many papers in the top three basic science journals than any other pediatric program, and 2.4 times more than the top 20 ranked pediatric programs combined! The proportion of papers published in the top 30 basic science journals exceeded all the Boston 'adult' hospitals and all medical schools (including their basic science departments), except for Stanford. Indeed, when the 2006-2015 papers of the full-time faculty at the Whitehead Institute (17 members) and the top 17 faculty researchers at Boston Children's Hospital are compared, the Children's faculty published 13.9% of their papers in Cell, Science or Nature, while the Whitehead faculty proportion was only 4.6%. Similarly, in clinical research BCRP researchers published 2.6 times more papers in the top three clinical journals (New England Journal of Medicine, JAMA and Lancet) than the next best pediatric program. Indeed, at Boston Medical Center 3.8% of pediatric papers during 2006 to 2015 appeared in these three journals, compared to an average of just 0.58% for the other top 20 ranked pediatric institutions. Thus, by any



**Resident and fellow Research Day**

## BOSTON COMBINED RESIDENCY PROGRAM

measure, the quality of the research in the BCRP is world class.

Research is an active aspect of the residency program as well. This is reflected in the high proportion of residents with previous research experience, the enthusiasm of the residents for their journal clubs and their own research, and just by conversations in the hallways or at rounds. Many outstanding physician-scientists and general academic researchers serve as attendings and they also help focus on the interplay between science and medicine.

### Resident Research

Although there is no formal research requirement, many residents do research, particularly clinical research during their training. Children's Hospital and Boston Medical Center both have federally funded General Clinical Research Centers (called the Experimental Therapeutics Unit at Children's), and outstanding Institutional Centers for Clinical & Translational Research, with biostatisticians, epidemiologists, and other personnel to aid in experimental design. Children's is also part of Harvard Catalyst, a consortium of Harvard hospitals and resources dedicated to clinical research. The Harvard Catalyst provides incredible resources for interconnecting investigators with common interests across the Harvard community and has introduced very powerful tools that facilitate clinical research, such as the Shared Health Research Information Network ([SHRINE](#)), an interactive database of patients seen at the Harvard hospitals who meet clinical criteria of interest. Catalyst also provides education and training in clinical research, pilot funding, core facilities and many other services. Faculty members at both Children's and BMC are eager to help residents with research, and many serve as mentors for research projects. The Academic Development Block provides a time to do small projects or conclude larger ones and the new Academy of Investigation and Academy of Clinical Innovation emphasize research. Both the Department of Medicine at Children's Hospital, and the hospital sponsor Research Days where residents and fellows can present their work. In addition, 15-30 current or recently graduated BCRP houseofficers typically submit abstracts of research they did during residency to the Pediatric Academic Societies spring meeting each year. Though not all resident research is published, much of it is, and often it is of high quality. Some examples of research done by residents and published during the past 2.5 years follow (**resident names are in bold**):

#### 2018

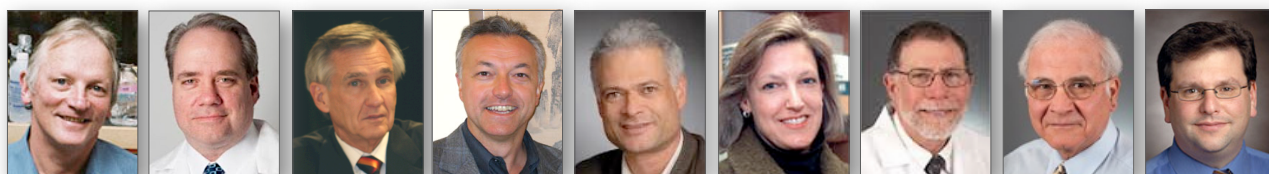
- Berry JG, Gay JC, Joynt Maddox K, Coleman EA, **Bucholz EM**, O'Neill MR, Blaine K, Hall M. Age trends in 30 day hospital readmissions: US national retrospective analysis. *BMJ*. 2018;360:k497.



#### *Residents present at national conferences every year*

- Bucholz EM**, Gay JC, Hall M, Harris M, Berry JG. Timing and causes of common pediatric readmissions. *J Pediatr*. 2018. [Epub ahead of print]
- Bucholz EM**, Gooding HC, de Ferranti SD. Awareness of cardiovascular risk factors in U.S. young adults aged 18-39 years. *Am J Prev Med*. 2018;54:e67-e77.
- Bucholz EM**, Rodday AM, Kolor K, Khoury MJ, de Ferranti SD. Prevalence and predictors of cholesterol screening, awareness, and statin treatment among us adults with familial hypercholesterolemia or other forms of severe dyslipidemia (1999-2014). *Circulation*. 2018;137:2218-2230.
- Bucholz EM**, Sleeper LA, Newburger JW. Neighborhood socioeconomic status and outcomes following the Norwood procedure: an analysis of the Pediatric Heart Network single ventricle reconstruction trial public data set. *J Am Heart Assoc*. 2018;7. pii: e007065
- Campbell JI**, Eyal N, Musiimenta A, Burns B, Natukunda S, Musinguzi N, Haberer JE. Ugandan study participants experience electronic monitoring of antiretroviral therapy adherence as welcomed pressure to adhere. *AIDS Behav*. 2018; [Epub ahead of print]
- Cesana M, Guo MH, Cacchiarelli D, **Wahlster L**, Barragan J, Doulatov S, Vo LT, Salvatori B, Trapnell C, Clement K, Cahan P, Tsanov KM, Sousa PM, Tazon-Vega B, Bolondi A, Giorgi FM, Califano A, Rinn JL, Meissner A, Hirschhorn JN, Daley GQ. A CLK3-HMGA2 alternative splicing axis impacts human hematopoietic stem cell molecular identity throughout development. *Cell Stem Cell*. 2018;22:575-588.
- Cuneo CN**. Collateral damage. *JAMA*. 2018;319:1093.
- Datkhaeva I, Has P, **Fitzgerald K**, Hughes BL. Outcomes of a negative rapid influenza diagnostic test in pregnant women. *Am J Perinatol*. 2018. [Epub ahead of print]
- Ebrahimi-Fakhari D**. Congenital disorders of autophagy: what a pediatric neurologist should know. *Neuropediatrics*. 2018;49:18-25.
- Ebrahimi-Fakhari D**, Cheng C, Dies K, Diplock A, Pier DB, Ryan CS, Lanpher BC, Hirst J, Chung WK, Sahin M, Rosser E, Darras B, Bennett JT; CureSPG47. Clinical and genetic





Fred Alt  
BCH  
NAS / NAM / AAAS  
HHMI

Scott Armstrong  
DFCI / BCH  
NAM

Ed Benz  
DFCI / BCH  
NAM / AAAS

George Daley  
HMS / BCH  
NAM / AAAS

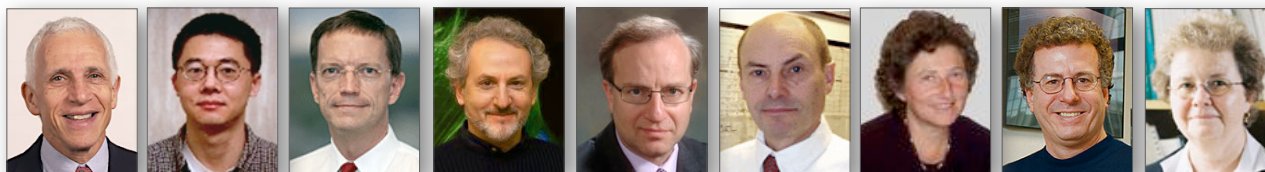
Alan D'Andrea  
DFCI / BCH  
NAM / AAAS

Elizabeth Engle  
BCH  
HHMI

Gary Fleisher  
BCH  
NAM

Raif Geha  
BCH  
AAAS

Todd Golub  
Broad / DFCI / BCH  
NAM / HHMI



Steve Harrison  
BCH / HMS  
NAS / AAAS / HHMI

Xi He  
BCH  
AAAS

Friedhelm Hildebrandt  
BCH  
NAM

Donald Ingber  
Wyss / BCH  
NAM / AAAS

Isaac Kohane  
BCH / HMS  
NAM

Louis Kunkel  
BCH  
NAS / AAAS

Judy Lieberman  
BCH  
AAAS

A. Thomas Look  
DFCI / BCH  
AAAS

Marie McCormack  
HMS / BCH  
NAM



Marsha Moses  
BCH  
NAM

David Nathan  
DFCI / BCH  
NAM / AAAS

Charles Nelson  
BCH  
AAAS

Stu Orkin  
BCH / DFCI  
NAS / NAM / AAAS /  
HHMI

David Pellman  
DFCI / BCH  
AAAS / HHMI

Hidde Ploegh  
BCH  
NAS / AAAS

Scott Pomeroy  
BCH  
NAM

Yang Shi  
BCH  
AAAS

Jack Shonkoff  
HSPH, BCH  
NAM



Timothy Springer  
BCH  
NAS / AAAS

Beth Stevens  
BCH  
HHMI

Joe Volpe  
BCH  
NAM

Denisa Wagner  
BCH  
AAAS

Chris Walsh  
BCH  
NAS / NAM / AAAS  
HHMI

Matt Warman  
BCH  
HHMI

David Williams  
BCH  
NAM / AAAS

Hao Wu  
BCH  
NAS

Yi Zhang  
BCH  
AAAS / HHMI

Len Zon  
BCH  
NAM / AAAS / HHMI

**BCRP faculty who belong to the National Academy of Sciences (NAS), National Academy of Medicine (NAM), Howard Hughes Medical Institute (HHMI), or are Fellows of the American Academy of Arts and Sciences (AAAS)**

*(BIDMC, Beth Israel Deaconess Hosp; BMC, Boston Medical Ctr; BWH, Brigham & Women's Hosp; Broad, Broad Inst; BCH, Children's Hosp Boston; DFCI, Dana-Farber Cancer Inst; HMS, Harvard Med School; HSPH, Harvard School of Public Health; Wyss, Wyss Inst for Biologically Inspired Engineering.)*

characterization of AP4B1-associated SPG47. *Am J Med Genet A*. 2018;176:311-318.

- **Ebrahimi-Fakhari D, Hildebrandt C, Davis PE, Rodan LH, Anselm I, Bodamer O.** The spectrum of movement disorders in childhood-onset lysosomal storage diseases. *Mov Disord Clin Pract*. 2018;5:149-155.
- **Ebrahimi-Fakhari D, Moufawad El Achkar C, Klein C.** *PRRT2*-associated paroxysmal movement disorders. In: Adam MP, Ardinger HH, Pagon RA, Wallace SE, Bean LJH, Stephens K, Amemiya A, editors. *GeneReviews®* [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2018. 2018 Jan 11.
- **Ebrahimi-Fakhari D, Neubauer B, Plecko B, Wolf NI.** Resident and fellow section in neuropaediatrics. *Neuropaediatrics*. 2018;49:229-230.
- Frederick NN, **Campbell K, Kenney LB, Moss K, Speckhart A, Bober SL.** Barriers and facilitators to sexual and reproductive health communication between pediatric oncology clinicians

and adolescent and young adult patients: The clinician perspective. *Pediatr Blood Cancer*. 2018;65:e27087.

- Gonçalves IDCG, Brecht J, Thelen MP, Rehorst WA, Peters M, Lee HJ, Motameny S, Torres-Benito L, **Ebrahimi-Fakhari D, Kononenko NL, Altmüller J, Vilchez D, Sahin M, Wirth B, Kye MJ.** Neuronal activity regulates DROSHA via autophagy in spinal muscular atrophy. *Sci Rep*. 2018;8:7907.
- Hersh AL, **Shapiro DJ, Pavia AT, Fleming-Dutra KE, Hicks LA.** Geographic variability in diagnosis and antibiotic prescribing for acute respiratory tract infections. *Infect Dis Ther*. 2018;7:171-174.
- Hersh AO, **Case SM, Son MB; CARRA Registry Investigators.** Predictors of disability in a childhood-onset systemic lupus erythematosus cohort: results from the CARRA Legacy Registry. *Lupus*. 2018;27:494-500.
- Hester CN, **Tsai JW.** Saving ourselves, our patients, and our profession: Making the case for narrative competence in pediatrics. *Acad Pediatr*. 2018;18:243-247.

## BOSTON COMBINED RESIDENCY PROGRAM

- **Hirschberger RG**, Kuban KCK, O'Shea TM, Joseph RM, Heeren T, Douglass LM, Stafstrom CE, Jara H, Frazier JA, Hirtz D, Rollins JV, Paneth N; ELGAN Study Investigators. Co-occurrence and severity of neurodevelopmental burden (cognitive impairment, cerebral palsy, autism spectrum disorder, and epilepsy) at age ten years in children born extremely preterm. *Pediatr Neurol*. 2018;79:45-52.
  - **Jayaraman D**, Bae BI, Walsh CA. The genetics of primary microcephaly. *Annu Rev Genomics Hum Genet*. 2018. [Epub ahead of print]
  - Kabbani S, Hersh AL, **Shapiro DJ**, Fleming-Dutra KE, Pavia AT, Hicks LA. Opportunities to improve fluoroquinolone prescribing in the United States for adult ambulatory care visits. *Clin Infect Dis*. 2018;67:134-136.
  - **Kanak M**, Stewart A, Vinci R, Liu S, Sandel M. Trends in homeless children and young adults seeking shelter in a Boston pediatric emergency department following state housing policy changes, 2011-2016. *Am J Public Health*. 2018;108:1076-1078.
  - **Lechner MG**, Vyas CM, Hamnvik OR, Alexander EK, Larsen PR, Choueiri TK, Angell TE. Hypothyroidism during tyrosine kinase inhibitor therapy is associated with longer survival in patients with advanced nonthyroidal cancers. *Thyroid*. 2018;28:445-453.
  - **Lechner MG**, Vyas CM, Hamnvik OR, Alexander EK, Larsen PR, Choueiri TK, Angell TE. Risk factors for new hypothyroidism during tyrosine kinase inhibitor therapy in advanced nonthyroidal cancer patients. *Thyroid*. 2018;28:437-444.
  - Medford AJ, **Gillani RN**, Park BH. Detection of cancer dna in early stage and metastatic breast cancer patients. *Methods Mol Biol*. 2018;1768:209-227.
  - **Meziab O**, Abrams DJ, Alexander ME, Bevilacqua L, Bezzerides V, Mah DY, Walsh EP, Triedman JK. Utility of incomplete right bundle branch block as an isolated ECG finding in children undergoing initial cardiac evaluation. *Congenit Heart Dis*. 2018;13:419-427.
  - **Milligan C**, Slyker JA, Overbaugh J. The role of immune responses in HIV mother-to-child transmission. *Adv Virus Res*. 2018;100:19-40.
  - Muthalaly RG, Koplan BA, Albano A, North C, **Campbell JI**, Kakuhi B, Vořechovská D, Kraemer JD, Tsai AC, Siedner MJ. Low population prevalence of atrial fibrillation in rural Uganda: A community-based cross-sectional study. *Int J Cardiol*. 2018; [Epub ahead of print]
  - Oberhelman SS, Cozine EW, Umaretiya PJ, Maxson JA, Thacher TD. Vitamin D and the breastfeeding infant: family medicine clinicians' knowledge, attitudes, and practices. *J Hum Lact*. 2018;34:331-336.
  - **O'Halloran CP**, Alexander PMA, Andren KG, Mecklosky J, Salvin JW, Larsen S, Zalieckas J, Fynn-Thompson F, Thiagarajan RR. RBC exposure in pediatric extracorporeal membrane oxygenation: Epidemiology and factors associated with large blood transfusion volume. *Pediatr Crit Care Med*. 2018. [Epub ahead of print]
  - **O'Halloran C**, Winn A. Case 3: Persistent Pharyngitis in a 14-year-old Girl. *Pediatr Rev*. 2018;39:213.
  - Rajbhandari P, Lopez G, Capdevila C, Salvatori B, Yu J, Rodriguez-Barrueco R, Martinez D, Yarmarkovich M, **Weichert-Leahey N**, Abraham BJ, Alvarez MJ, Iyer A, Harenza JL, Oldridge D, De Preter K, Koster J, Asgharzadeh S, Seeger RC, Wei JS, Khan J, Vandesompele J, Mestdagh P, Versteeg R, Look AT, Young RA, Iavarone A, Lasorella A, Silva JM, Maris JM, Califano A. Cross-cohort analysis identifies a tead4-mycn positive feedback loop as the core regulatory element of high-risk neuroblastoma. *Cancer Discov*. 2018;8:582-599.
  - Schaub JR, Huppert KA, Kurial SNT, Hsu BY, Cast AE, Donnelly B, Karns RA, Chen F, **Rezvani M**, Luu HY, Mattis AN, Rougemont AL, Rosenthal P, Huppert SS, Willenbring H. De novo formation of the biliary system by TGFβ-mediated hepatocyte transdifferentiation. *Nature*. 2018;557:247-251.
  - Selekman RE, **Shapiro DJ**, Boscardin J, Williams G, Craig JC, Brandström P, Pennesi M, Roussey-Kesler G, Hari P, Copp HL. Uropathogen resistance and antibiotic prophylaxis: A meta-analysis. *Pediatrics*. 2018;142. pii: e20180119.
  - **Shanahan KH**, Yu X, Miller LG, Freedman SD, Martin CR. Early Serum Gut Hormone Concentrations Associated With Time to Full Enteral Feedings in Preterm Infants. *J Pediatr Gastroenterol Nutr*. 2018;67:97-102.
  - Stouffs K, Stergachis AB, Vanderhasselt T, Dica A, Janssens S, Vandervore L, Gheldof A, Bodamer O, Keymolen K, Seneca S, Liebaers I, **Jayaraman D**, Hill HE, Partlow JN, Walsh CA, Jansen AC. Expanding the clinical spectrum of biallelic ZNF335 variants. *Clin Genet*. 2018;94:246-251.
  - **Tsai JW**. Can you see the gorilla? *Acad Pediatr*. 2018;18:237-238.
  - **Tsai JW**, Vanderford NL, Muindi F. Optimizing the utility of the individual development plan for trainees in the biosciences. *Nat Biotechnol*. 2018;36:552-553.
  - van der Ven AT, Kobbe B, Kohl S, Shril S, Pogoda HM, Imhof T, **Ityel H**, Vivante A, Chen J, Hwang DY, Connaughton DM, Mann N, Widmeier E, Taglienti M, Schmidt JM, Nakayama M, Senguttuvan P, Kumar S, Tasic V, Kehinde EO, Mane SM, Lifton RP, Soliman N, Lu W, Bauer SB, Hammerschmidt M, Wagener R, Hildebrandt F. A homozygous missense variant in VWA2, encoding an interactor of the Fraser-complex, in a patient with vesicoureteral reflux. *PLoS One*. 2018;13:e0191224.
  - Winden KD, **Ebrahimi-Fakhari D**, Sahin M. Abnormal mTOR activation in autism. *Annu Rev Neurosci*. 2018;41:1-23.
  - Zimmerman MW, Liu Y, He S, Durbin AD, Abraham BJ, Easton J, Shao Y, Xu B, Zhu S, Zhang X, Li Z, **Weichert-Leahey N**, Young RA, Zhang J, Look AT. MYC drives a subset of high-risk pediatric neuroblastomas and is activated through mechanisms including enhancer hijacking and focal enhancer amplification. *Cancer Discov*. 2018;8:320-335.
- ### 2017
- Abraham BJ, Hnisz D, Weintraub AS, Kwiatkowski N, Li CH, Li Z, **Weichert-Leahey N**, Rahman S, Liu Y, Etchin J, Li B, Shen S, Lee TI, Zhang J, Look AT, Mansour MR, Young RA. Small genomic insertions form enhancers that misregulate oncogenes. *Nat Commun*. 2017 Feb 9;8:14385.
  - **Baker AL**, Vanderpluym C, Gauvreau KA, Fulton DR, de Ferranti SD, Friedman KG, Murray JM, Brown LD, Almond CS, Evans-Langhorst M, Newburger JW. Safety and efficacy of



## Autophagy in Development and Disease



**BCRP residents and physician-scientist couple  
Darius Ebrahimi-Fakhari and Lara Walster**

Autophagy is an intercellular pathway that is essential to the development and function of all major organs. Disorders of this pathway offer a unique opportunity to understand the importance in health and disease – a concept that recent residents Lara Wahlster and her husband, Darius Ebrahimi-Fakhari, explore on a clinical, genetic and molecular level. While Lara's work has focused on congenital anemias and hematopoiesis, Darius is interested in neurogenetic diseases and movement disorders. Their scientific paths often cross around autophagy.

Working with George Daley at Children's Lara generated hematopoietic progenitor cells from induced pluripotent stem cells of patients with Diamond-Blackfan anemia (DBA). Using an unbiased chemical screening she helped identify SMER28, a small molecule inducer of autophagy that enhances erythropoiesis in a range of *in vitro* and *in vivo* models of DBA (*Nat Cell Biol*). These findings point to autophagy as a therapeutic

pathway in DBA (*Sci Transl Med*). As a resident in the accelerated research pathway, Lara is working with her mentor and former BCRP graduate Vijay Sankaran to identify genetic variants that affect engraftment and clinical outcomes after stem cell transplantation.

As a student in the lab of Pamela McLean at MGH, Darius became interested in the role of autophagy in neurons, when he found that the Parkinson's disease associated protein  $\alpha$ -synuclein is targeted by this pathway (*J Neurosci, Autophagy*). In Mustafa Sahin's laboratory at Children's, he used Tuberous Sclerosis Complex (TSC) as a genetically tractable model of mTORC1-dependent autophagy in neurons (*Cell Rep*). For this work, Darius was awarded the Outstanding Junior Member Award from the Child Neurology Society and the Outstanding Investigator Award from the German Society for Pediatric Neurology. In addition, Darius has led several clinical research projects aimed at understanding rare genetic movement disorders associated with PRRT2 mutations (*Neurology, Brain*) and more recently hereditary spastic paraplegia type SPG47, a disorder again linked to deficits in autophagy. Most of his work is inspired by patients and families that he cared for as a medical student and as a resident at Children's.

In other studies, Lara and Darius collaborate on diseases that share both hematologic and neurological problems, such as the lysosomal storage disorders (*Hum Mol Gen*). Following their research and clinical interests, Lara is going to fast-track into a Hematology and Oncology Fellowship and Darius will join the Child Neurology Program after graduating from the BCRP.

warfarin therapy in Kawasaki disease. *J Pediatr*. 2017;189:61-65.

- **Bucholz EM**, Beckman AL, Kiefe CI, Krumholz HM. Life years gained from smoking-cessation counseling after myocardial infarction. *Am J Prev Med*. 2017;52:38-46.
- **Bucholz EM**, Strait KM, Dreyer RP, Lindau ST, D'Onofrio G, Geda M, Spatz ES, Beltrame JF, Lichtman JH, Lorenze NP, Bueno H, Krumholz HM. Editor's Choice - Sex differences in young patients with acute myocardial infarction: A VIRGO study analysis. *Eur Heart J Acute Cardiovasc Care*. 2017;6:610-622.
- **Campbell JI**, Aturinda I, Mwesigwa E, Burns B, Santorino D, Haberer JE, Bangsberg DR, Holden RJ, Ware NC, Siedner MJ. The technology acceptance model for resource-limited settings (TAM-RLS): a novel framework for mobile health interventions targeted to low-literacy end-users in resource-limited settings. *AIDS Behav*. 2017;21:3129-3140.
- **Campbell JI**, Yau C, Krass P, Moore D, Carey LA, Au A, Chhieng D, Giri D, Livasy C, Mies C, Rabban J, Sarode VR, Singh B, Esserman L, Chen YY. Comparison of residual cancer burden, American Joint Committee on Cancer staging and

pathologic complete response in breast cancer after neoadjuvant chemotherapy: results from the I-SPY 1 TRIAL (CALGB 150007/150012; ACRIN 6657). *Breast Cancer Res Treat*. 2017;165:181-191.

- **Campbell K**, Gastier-Foster JM, Mann M, Naranjo AH, Van Ryn C, Bagatell R, Matthay KK, London WB, Irwin MS, Shimada H, Granger MM, Hogarty MD, Park JR, DuBois SG. Association of MYCN copy number with clinical features, tumor biology, and outcomes in neuroblastoma: A report from the Children's Oncology Group. *Cancer*. 2017;123:4224-4235.
- **Campbell K**, Karski EE, Olow A, Edmondson DA, Kohlgruber AC, Coleman M, Haas-Kogan DA, Matthay KK, DuBois SG. Peripheral blood biomarkers associated with toxicity and treatment characteristics after <sup>131</sup>I- metaiodobenzylguanidine therapy in patients with neuroblastoma. *Int J Radiat Oncol Biol Phys*. 2017;99:468-475.
- **Caldwell KJ**, Miller AF. Adolescent male with syncope. *Ann Emerg Med*. 2017;69:e63-e64.
- **Cuneo CN**. Outside the door. *JAMA Cardiol*. 2017;2:829.
- **Cuneo CN**, Dansereau E, Habib AR, Davies M, Ware S, Kornetsky K. Treating childhood malnutrition in rural Haiti:



## Health Outcomes



**BCRP resident  
Emily Bucholz**

As an MD/PhD student at Yale, resident Emily Bucholz studied socio-demographic disparities in health outcomes and quantified the long-term impact of quality metrics on patient life expectancy. She has continued her work in quality measurement as a pediatric resident in the Integrated Research Pathway (IRP) studying pediatric readmissions under the mentorship of Dr. Mark Schuster and Dr. Jay Berry. Her work focuses on characterizing the timing and causes of pediatric readmissions as well as the association of pediatric and adult readmissions and trends over time. The goal of this research is to better understand when children are at great-

est risk of readmission, how patterns of readmission vary by index diagnoses and causes of readmission, and whether large-scale readmission efforts in adult populations have had an effect on pediatric readmissions. In addition, she has continued to investigate sociodemographic disparities in health outcomes among children with single ventricle heart disease and disparities in cardiovascular risk factor awareness among young adults. She has been awarded young investigator awards by both the American Heart Association and the American College of Cardiology; and more recently, her work evaluating the relationship between hospital performance and patient life expectancy (*N Engl J Med*) was awarded one of the Top 10 Clinical Research Achievement Awards of 2017 by the Clinical Research Forum. Emily will be staying at Boston Children's for fellowship in pediatric cardiology.

Program outcomes and obstacles. *Ann Glob Health*. 2017;83:300-310.

- **Cuneo CN**, Sollom R, Beyrer C. The cholera epidemic in Zimbabwe, 2008-2009: A review and critique of the evidence. *Health Hum Rights*. 2017;19:249-264.
- Diuguid-Gerber J, Porter S, Quiah SC, Nickerson K, Jones D, **Audi Z**, Richards BF. The Columbia-Bronx VA amalgamative clerkship: an effective, 12-week, integrated, longitudinal clinical experience. *Med Educ Online*. 2017;22:1301630.
- Donkervoort S, Chan SHS, **Hayes LH**, Bradley N, Nguyen D, Leach ME, Mohassel P, Hu Y, Thangarajh M, Bharucha-Goebel D, Kan A, Ho RSL, Reyes CA, Nance J, Moore SA, Foley AR, Bönnemann CG. Cytoplasmic body pathology in severe ACTA1-related myopathy in the absence of typical nemaline rods. *Neuromuscul Disord*. 2017;27:531-536.
- Doulatov S, Vo LT, Macari ER, **Wahlster L**, Kinney MA, Taylor AM, Barragan J, Gupta M, McGrath K, Lee HY, Humphries JM, DeVine A, Narla A, Alter BP, Beggs AH, Agarwal S, Ebert BL, Gazda HT, Lodish HF, Sieff CA, Schlaefer TM, Zon LI, Daley GQ. Drug discovery for Diamond-Blackfan anemia using reprogrammed hematopoietic progenitors. *Sci Transl Med*. 2017;9. pii: eaah5645
- **Ebrahimi-Fakhari D**, Freiman E, **Wojcik MH**, Krone K, Casey A, Winn AS, Roberts AE, Harper BD. Congenital chylothorax as the initial presentation of PTPN11-associated Noonan syndrome. *J Pediatr*. 2017;185:248-248.e1.
- **Ebrahimi-Fakhari D**, Saffari A, **Wahlster L**, Sahin M. Using tuberosus sclerosis complex to understand the impact of mTORC1 signaling on mitochondrial dynamics and mitophagy in neurons. *Autophagy*. 2017;13:754-6.
- Evrony GD, Cordero DR, Shen J, Partlow JN, Yu TW, Rodin RE, Hill RS, Coulter ME, Lam AN, **Jayaraman D**, Gerrelli D, Diaz DG, Santos C, Morrison V, Galli A, Tschulena U, Wiemann S, Martel MJ, Spooner B, Ryu SC, Elhosary PC, Richardson JM, Tierney D, Robinson CA, Chibbar R, Diudea D, Folkerth R, Wiebe S, Barkovich AJ, Mochida GH, Irvine J, Lemire EG, Blakley P, Walsh CA. Integrated genome and transcriptome sequencing identifies a noncoding mutation in the genome replication factor *DONSON* as the cause of microcephaly-micromelia syndrome. *Genome Res*. 2017;27:1323-1335.
- **Hole MK**, **Marcil LE**, Vinci RJ. Improving access to evidence-based antipoverty government programs in the United States: a novel primary care initiative. *JAMA Pediatr*. 2017;171:211-212.
- **Howard MB**, Schiff DM, Penwill N, Si W, Rai A, Wolfgang T, Moses JM, Wachman EM. Impact of parental presence at infants' bedside on neonatal abstinence syndrome. *Hosp Pediatr*. 2017;7:63-69.
- Johnson PK, Mendelson MM, **Baker A**, Ryan HH, Warren S, Graham D, Griggs SS, Desai NK, Yellen E, Buckley L, Zachariah JP, de Ferranti SD. Statin-associated myopathy in a pediatric preventive cardiology practice. *J Pediatr*. 2017;185:94-98.
- Lam HC, Baglini CV, Lope AL, Parkhitko AA, Liu HJ, Alesi N, Malinowska IA, **Ebrahimi-Fakhari D**, Saffari A, Yu JJ, Pereira A, Khabibullin D, Ogorek B, Nijmeh J, Kavanagh T, Handen A, Chan SY, Asara JM, Oldham WM, Diaz-Meco MT, Moscat J, Sahin M, Priolo C, Henske EP. p62/SQSTM1 cooperates with hyperactive mTORC1 to regulate glutathione production, maintain mitochondrial integrity, and promote tumorigenesis. *Cancer Res*. 2017;77:3255-3267.
- **Levin JC**, Jang J, Rhein LM. Apnea in the otherwise healthy, term newborn: national prevalence and utilization during the birth hospitalization. *J Pediatr*. 2017;181:67-73.
- **Lewen MO**, Kavanagh PL, Sobota AE. A comment on improving transcranial Doppler ultrasonography screening in children with sickle cell anemia. *Am J Hematol*. 2017;92:E121-E122.
- **McCracken KW**, Wells JM. Mechanisms of embryonic stomach development. *Semin Cell Dev Biol*. 2017;66:36-42.
- Mody RJ, **Prensner JR**, Everett J, Parsons DW, Chinnaiyan AM. Precision medicine in pediatric oncology: Lessons learned and next steps. *Pediatr Blood Cancer*. 2017;64. doi: 10.1002/pbc.26288.

## Dark Matter of the Cancer Genome



**Recent BCRP  
resident  
John Prensner**

After completing undergraduate degrees in English literature and history, recent resident John Prensner embarked on a career shift towards the sciences. He took a research position at the then newly-minted Broad Institute of Harvard and MIT and became absorbed in the study of cancer genomics. He followed this by enrolling in the MD/PhD program at the University of Michigan in Ann Arbor, where he completed his dissertation work under the mentorship of Arul Chinnaiyan. For his research, John delved into the "dark

matter" of the cancer genome—the 98% which is not known to produce proteins and has few described functions. John's work pioneered the use of next generation sequencing in human cancer research and used human prostate cancer samples to delineate an unknown network of long non-coding RNAs (lncRNAs). He discovered PCAT1 as a lncRNA that controls cell proliferation (*Nat Biotechnol*), functioning as a sponge that interferes with the ability of one microRNA to degrade the cMYC onco-

gene (*Neoplasia*). He further found a separate function of PCAT1 as a regulator of genome maintenance through antagonism of the BRCA2 tumor suppressor gene (*Ca Resch*). He then defined the SChLAP1 lncRNA as a central mediator of cancer cell invasion and metastasis, functioning by blocking the SWI/SNF epigenetic complex and altering cell gene expression globally (*Nat Genet*). He also showed that SChLAP1 expression is one of the single best clinical predictors of prostate cancer relapse, metastasis, and death (*Lancet Oncol*). He was able to translate these findings into two patents with one commercial biomarker assay developed. As a BCRP resident, John has continued his research efforts back at the Broad Institute, under the mentorship of Todd Golub, where he has been working to characterize a class of unknown proteins, termed micropeptides, and how these micropeptides offer new clinical and therapeutic angles for translational cancer science. In other studies, John has been a collaborator on efforts to translate genomics to pediatric clinical medicine (*JAMA*) and is studying pediatric cancer patients who have had their genomes sequenced (*Pediat Blood Cancer*). John is currently a pediatric hematology/oncology fellow at Boston Children's/Dana-Farber Cancer Institute.

- Montenegro BL, Amberson M, **Veit L**, Freiburger C, Dukhovny D, Rhein LM. Economics of home monitoring for apnea in late preterm infants. *Respir Care*. 2017;62:42-48.
- Montenegro B, Freiburger C, **Veit L**, Amberson M, Mukhopadhyay S, Rhein L. An occurrence of apnea, bradycardia, and desaturation events resulting in a delay of discharge in late preterm and full term infants. *Pediatr Neonatol*. 2017. [Epub ahead of print]
- **O'Brien A**, O'Brien M, Schlosser RW, Yu C, Allen AA, Flynn S, Costello J, Shane HC. Repurposing consumer products as a gateway to just-in-time communication. *Semin Speech Lang*. 2017 Sep;38(4):297-312.
- Pease-Raissi SE, Pazyra-Murphy MF, Li Y, **Wachter F**, Fukuda Y, Fenstermacher SJ, Barclay LA, Bird GH, Walensky LD, Segal RA. Paclitaxel reduces axonal Bclw to initiate IP<sub>3</sub>R1-dependent axon degeneration. *Neuron*. 2017;96:373-386.
- Pritz JR, **Wachter F**, Lee S, Luccarelli J, Wales TE, Cohen DT, Coote P, Heffron GJ, Engen JR, Massefski W, Walensky LD. Allosteric sensitization of proapoptotic BAX. *Nat Chem Biol*. 2017;13:961-967.
- Richardson HS, Eyal N, **Campbell JI**, Haberer JE. When ancillary care clashes with study aims. *N Engl J Med*. 2017;377:1213-1215.
- Saffari A, Kölker S, Hoffmann GF, **Ebrahimi-Fakhari D**. Linking mitochondrial dysfunction to neurodegeneration in lysosomal storage diseases. *J Inherit Metab Dis*. 2017;40:631-640.
- Sanchez GV, **Shapiro DJ**, Hersh AL, Hicks LA, Fleming-Dutra KE. Outpatient macrolide antibiotic prescribing in the United States, 2008-2011. *Open Forum Infect Dis*. 2017;4:ofx220.
- **Schoettler ML**, Graham D, Tao W, Stack M, Shu E, Kerr L, Neufeld EJ, Grace RF. Increasing observation rates in low-risk pediatric immune thrombocytopenia using a standardized clinical assessment and management plan (SCAMP). *Pediatr Blood Cancer*. 2017;64. doi: 10.1002/pbc.26303.
- **Shapiro DJ**, Lindgren CE, Neuman MI, Fine AM. Viral features and testing for streptococcal pharyngitis. *Pediatrics*. 2017;139. pii: e20163403.
- Son MBF, Gauvreau K, Kim S, Tang A, Dedeoglu F, Fulton DR, Lo MS, **Baker AL**, Sundel RP, Newburger JW. Predicting coronary artery aneurysms in Kawasaki disease at a North American center: An assessment of baseline z scores. *J Am Heart Assoc*. 2017;6 pii: e005378.
- **Theodoris CV**, Mourkioti F, Huang Y, Ranade SS, Liu L, Blau HM, Srivastava D. Long telomeres protect against age-dependent cardiac disease caused by NOTCH1 haploinsufficiency. *J Clin Invest*. 2017;127:1683-1688.
- Toprak D, **Midyat L**, Freiburger D, Boyer D, Fynn-Thompson F, Visner G. Outcomes of mechanical support in a pediatric lung transplant center. *Pediatr Pulmonol*. 2017;52:360-6.
- **Tsai JW**. Making conscious the unconscious. *JAMA Pediatr*. 2017;171:725-726.
- **Tsai JW**. Processing death. *JAMA Oncol*. 2017;3:1025-1026.
- **Umaretiya PJ**, Oberhelman SS, Cozine EW, Maxson JA, Quigg SM, Thacher TD. Maternal preferences for vitamin D supplementation in breastfed infants. *Ann Fam Med*. 2017;15:68-70.
- van der Ven AT, Shril S, **Ityel H**, Vivante A, Chen J, Hwang DY, Laricchia KM, Lek M, Tasic V, Hildebrandt F. Whole-exome sequencing reveals *FAT4* mutations in a clinically

## BOSTON COMBINED RESIDENCY PROGRAM

- unrecognizable patient with syndromic cakat: a case report. *Mol Syndromol*. 2017;8:272-277.
- Vivante A, **Ityel H**, Pode-Shakked B, Chen J, Shril S, van der Ven AT, Mann N, Schmidt JM, Segel R, Aran A, Zeharia A, Staretz-Chacham O, Bar-Yosef O, Raas-Rothschild A, Landau YE, Lifton RP, Anikster Y, Hildebrandt F. Exome sequencing in Jewish and Arab patients with rhabdomyolysis reveals single-gene etiology in 43% of cases. *Pediatr Nephrol*. 2017;32:2273-2282.
  - Vivante A, **Mann N**, Yonath H, Weiss AC, Getwan M, Kaminski MM, Bohnenpoll T, Teyssier C, Chen J, Shril S, van der Ven AT, **Ityel H**, Schmidt JM, Widmeier E, Bauer SB, Sanna-Cherchi S, Gharavi AG, Lu W, Magen D, Shukrun R, Lifton RP, Tasic V, Stanescu HC, Cavaillès V, Kleit R, Anikster Y, Dekel B, Kispert A, Lienkamp SS, Hildebrandt F. A dominant mutation in nuclear receptor interacting protein 1 causes urinary tract malformations *via* dysregulation of retinoic acid signaling. *J Am Soc Nephrol*. 2017;28:2364-2376.
  - **Wachter F**, Morgan AM, Godes M, Mourtada R, Bird GH, Walensky LD. Mechanistic validation of a clinical lead stapled peptide that reactivates p53 by dual HDM2 and HDMX targeting. *Oncogene*. 2017;36:2184-2190.
  - Zhu S, Zhang X, **Weichert-Leahey N**, Dong Z, Zhang C, Lopez G, Tao T, He S, Wood AC, Oldridge D, Ung CY, van Ree JH, Khan A, Salazar BM, Lummerz da Rocha E, Zimmerman MW, Guo F, Cao H, Hou X, Weroha SJ, Perez-Atayde AR, Neuberg DS, Meves A, McNiven MA, van Deursen JM, Li H, Maris JM, Look AT. LMO1 synergizes with MYCN to promote neuroblastoma initiation and metastasis. *Cancer Cell*. 2017;32:310-323.
- ### 2016
- Al-Herz W, Chu JI, van der Spek J, Raghupathy R, Massaad MJ, Keles S, **Biggs CM**, Cockerton L, Chou J, Dbaiho G, Elisofon SA, Hanna-Wakim R, Kim HB, Lehmann LE, McDonald DR, Notarangelo LD, Veys P, Chatila TA, Geha RS, Gaspar HB, Pai SY. Hematopoietic stem cell transplantation outcomes for 11 patients with dedicator of cytokinesis 8 deficiency. *J Allergy Clin Immunol*. 2016;138:852-9
  - Beck AF, Tschudy MM, Coker TR, Mistry KB, Cox JE, Gitterman BA, Chamberlain LJ, Grace AM, **Hole MK**, Klass PE, Lobach KS, Ma CT, Navsaria D, Northrip KD, Sadof MD, Shah AN, Fierman AH. Determinants of health and pediatric primary care practices. *Pediatrics*. 2016;137:1-11.
  - **Beckett AG**, Humphries D, Jerome JG, Teng JE, Ulysse P, Ivers LC. Acceptability and use of ready-to-use supplementary food compared to corn-soy blend as a targeted ration in an HIV program in rural Haiti: a qualitative study. *AIDS Res Ther*. 2016;13:11.
  - Beckman AL, **Bucholz EM**, Zhang W, Xu X, Dreyer RP, Strait KM, Spertus JA, Krumholz HM, Spatz ES. Sex differences in financial barriers and the relationship to recovery after acute myocardial infarction. *J Am Heart Assoc*. 2016;5. pii: e003923.
  - Beinvoogl BC, Rosman NP, Baumer FM, Rodan LH, Forster CS, **Kwon AH**, Berry GT. A 10-month-old with intermittent hypotonia and paralysis. *Pediatrics*. 2016;138. pii: e20151896.
  - **Boone PM**. Adolescents, family history, and inherited disease risk: an opportunity. *Pediatrics*. 2016;138. pii: e20160579.
  - Brauer PM, Pessach IM, Clarke E, **Rowe JH**, Ott de Bruin L, Lee YN, Dominguez-Brauer C, Comeau AM, Awong G, Felgentreff K, Zhang YH, Bredemeyer A, Al-Herz W, Du L, Ververs F, Kennedy M, Gilliani S, Keller G, Sleckman BP, Schatz DG, Bushman FD, Notarangelo LD, Zúñiga-Pflücker JC. Modeling altered T-cell development with induced pluripotent stem cells from patients with RAG1-dependent immune deficiencies. *Blood*. 2016;128:783-93.
  - **Brennan-Krohn T**, **Pica N**, Sandora TJ, McAdam A. The brief case: safe to go back in the water? *Vibrio parahaemolyticus* wound infection associated with brackish water. *J Clin Microbiol*. 2016;54:1414-5.
  - **Bucholz EM**, Beckman AL, Kiefe CI, Krumholz HM. Smoking status and life expectancy after acute myocardial infarction in the elderly. *Heart*. 2016;102:133-9.
  - **Bucholz EM**, Beckman AL, Krumholz HA, Krumholz HM. Excess weight and life expectancy after acute myocardial infarction: The obesity paradox reexamined. *Am Heart J*. 2016;172:173-81.
  - **Bucholz EM**, Butala NM, Ma S, Normand ST, Krumholz HM. Life expectancy after myocardial infarction, according to hospital performance. *N Engl J Med*. 2016;375:1332-42.
  - **Bucholz EM**, Butala NM, Normand SL, Wang Y, Krumholz HM. Association of guideline-based admission treatments and life expectancy after myocardial infarction in elderly Medicare beneficiaries. *J Am Coll Cardiol*. 2016;67:2378-91.
  - **Bucholz EM**, Krumholz HA, Krumholz HM. Underweight, markers of cachexia, and mortality in acute myocardial infarction: a prospective cohort study of elderly medicare beneficiaries. *PLoS Med*. 2016;13:e1001998.
  - Byrne S, Jansen L, U-King-Im JM, Siddiqui A, Lidov HG, Bodi I, Smith L, Mein R, Cullup T, Dionisi-Vici C, Al-Gazali L, Al-Owain M, Bruwer Z, Al Thihli K, El-Garhy R, Flanagan KM, Manickam K, Zmuda E, Banks W, Gershoni-Baruch R, Mandel H, Dagan E, Raas-Rothschild A, Barash H, Filloux F, Creel D, Harris M, Hamosh A, Kölker S, **Ebrahimi-Fakhari D**, Hoffmann GF, Manchester D, Boyer PJ, Manzur AY, Lourenco CM, Pilz DT, Kamath A, Prabhakar P, Rao VK, Rogers RC, Ryan MM, Brown NJ, McLean CA, Said E, Schara U, Stein A, Sewry C, Travan L, Wijburg FA, Zenker M, Mohammed S, Fanto M, Gautel M, Jungbluth H. EPG5-related Vici syndrome: a paradigm of neurodevelopmental disorders with defective autophagy. *Brain*. 2016;139:765-81.
  - Chen SI, Fox ER, Hall MK, Ross JS, **Bucholz EM**, Krumholz HM, Venkatesh AK. Despite federal legislation, shortages of drugs used in acute care settings remain persistent and prolonged. *Health Aff (Millwood)*. 2016;35:798-804.
  - Chien AT, Schiavoni KH, **Sprecher E**, Landon BE, McNeil BJ, Chernew ME, Schuster MA. How accountable care organizations responded to pediatric incentives in the alternative quality contract. *Acad Pediatr*. 2016;16:200-7.
  - **Duncan DR**, Amirault J, Johnston N, Mitchell P, Larson K, Rosen RL. Gastroesophageal reflux burden, even in children that aspirate, does not increase pediatric hospitalization. *J Pediatr Gastroenterol Nutr*. 2016;63:210-7.
  - Dy FJ, **Midyat L**, Wong WY, Boyer D. Primary ciliary dyskinesia: ciliary beat pattern/frequency, role of molecular analysis in the diagnosis, and neonatal distress. *Am J Respir Crit Care Med*. 2016;193:689-91.



## BOSTON COMBINED RESIDENCY PROGRAM

- **Ebrahimi-Fakhari D**, Saffari A, **Wahlster L**, Di Nardo A, Turner D, Lewis TL Jr, Conrad C, Rothberg JM, Lipton JO, Kölker S, Hoffmann GF, Han MJ, Polleux F, Sahin M. Impaired mitochondrial dynamics and mitophagy in neuronal models of Tuberous Sclerosis Complex. *Cell Rep*. 2016;17:1053-70.
- **Ebrahimi-Fakhari D**, Saffari A, **Wahlster L**, Lu J, Byrne S, Hoffmann GF, Jungbluth H, Sahin M. Congenital disorders of autophagy: an emerging novel class of inborn errors of neuro-metabolism. *Brain*. 2016;139:317-37.
- Fierman AH, Beck AF, Chung EK, Tschudy MM, Coker TR, Mistry KB, Siegel B, Chamberlain LJ, Conroy K, Federico SG, Flanagan PJ, Garg A, Gitterman BA, Grace AM, Gross RS, **Hole MK**, Klass P, Kraft C, Kuo A, Lewis G, Lobach KS, Long D, Ma CT, Messito M, Navsaria D, Northrip KR, Osman C, Sadof MD, Schickedanz AB, Cox J. Redesigning health care practices to address childhood poverty. *Acad Pediatr*. 2016;16:S136-46.
- **Hauptman M**, Phipatanakul W. Recent advances in environmental controls outside the home setting. *Curr Opin Allergy Clin Immunol*. 2016;16:135-41.
- **Hede SV**. Diagnosis and treatment of childhood meningitis Caused by *Streptococcus bovis* Group. *Curr Infect Dis Rep*. 2016;18:11.
- **Hirsch AW**, Monuteaux MC, Fruchtmann G, Bachur RG, Neuman MI. Characteristics of children hospitalized with aspiration pneumonia. *Hosp Pediatr*. 2016;6:659-666.
- Howell DR, Mannix RC, **Quinn B**, Taylor JA, Tan CO, Meehan WP 3rd. Physical activity level and symptom duration are Not associated after concussion. *Am J Sports Med*. 2016; 44:1040-6.
- Huang JT, **Reynolds SD**, DiGiovanni Evans B, Zimmermann C, Joyce CJ, Katz JT, Buzney E. Fine arts curriculum improves observational skills of dermatology trainees: a pilot study. *Br J Dermatol*. 2016;175:815-7
- Kim JW, Botvinnik OB, Abudayyeh O, Birger C, Rosenbluh J, Shrestha Y, Abazeed ME, Hammerman PS, DiCara D, Konieczkowski DJ, Johannessen CM, Liberzon A, Alizad-Rahvar AR, Alexe G, Aguirre A, Ghandi M, Greulich H, Vazquez F, Weir BA, Van Allen EM, Tsherniak A, **Shao DD**, Zack TI, Noble M, Getz G, Beroukhi R, Garraway LA, Ardakani M, Romualdi C, Sales G, Barbie DA, Boehm JS, Hahn WC, Mesirov JP, Tamayo P. Characterizing genomic alterations in cancer by complementary functional associations. *Nat Biotechnol*. 2016;34:539-46.
- **Koegel AK**, Hofmann I, Moffitt K, Degar B, Duncan C, Tubman VN. Acute lymphoblastic leukemia in a patient with monomac syndrome/GATA2 haploinsufficiency. *Pediatr Blood Cancer*. 2016;63:1844-7.
- **Lacy JN**, Ulirsch JC, Grace RF, Towne MC, Hale J, Mohandas N, Lux SE 4th, Agrawal PB, Sankaran VG. Exome sequencing results in successful diagnosis and treatment of a severe congenital anemia. *Cold Spring Harb Mol Case Stud*. 2016;2:a000885.
- Lenders CM, Manders AJ, **Perdomo JE**, Ireland KA, Barlow SE. Addressing pediatric obesity in ambulatory care: where are we and where are we going? *Curr Obes Rep*. 2016;5:214-40.
- **Lewen M**, Gresh R, Queenan M, Paessler M, Pillai V, Hexner E, Frank D, Bagg A, Aplenc R, Caywood E, Wertheim G. Pediatric chronic myeloid leukemia with inv(3)(q21q26.2) and T lymphoblastic transformation: a case report. *Biomark Res*. 2016;4:14.
- **Liu JR**, Yuki K, Baek C, Han XH, Soriano SG. Dexmedetomidine-induced neuroapoptosis is dependent on its cumulative dose. *Anesth Analg*. 2016;123:1008-17.
- **Marcil L**, Afsana K, Perry HB. First steps in initiating an effective maternal, neonatal, and child health program in urban slums: the BRAC Manoshi Project's experience with community engagement, social mapping, and census taking in Bangladesh. *J Urban Health*. 2016;93:6-18.
- Marras C, Lang A, van de Warrenburg BP, Sue CM, Tabrizi SJ, Bertram L, Mercimek-Mahmutoglu S, **Ebrahimi-Fakhari D**, Warner TT, Durr A, Assmann B, Lohmann K, Kostic V, Klein C. Nomenclature of genetic movement disorders: Recommendations of the international Parkinson and movement disorder society task force. *Mov Disord*. 2016;31:436-57.
- Mendelson MM, Regh T, Chan J, **Baker A**, Ryan HH, Palumbo N, Johnson PK, Griggs S, Boghani M, Desai NK, Yellen E, Buckley L, Gillman MW, Zachariah JP, Graham D, de Ferranti SD. Correlates of achieving statin therapy goals in children and adolescents with dyslipidemia. *J Pediatr*. 2016;178:149-55.
- Meyers DJ, Ozonoff A, Baruwala A, Pande S, Harsha A, Sharma R, **Schwarz D**, Schwarz RK, Bista D, Halliday S, Maru DS. Combining healthcare-based and participatory approaches to surveillance: trends in diarrheal and respiratory conditions collected by a mobile phone system by community health workers in rural Nepal. *PLoS One*. 2016;11:e0152738.
- **Midyat L**, Gulen F, Karaca E, Ozkinay F, Tanac R, Demir E, Cogulu O, Aslan A, Ozkinay C, Onay H, Atasever M. MicroRNA expression profiling in children with different asthma phenotypes. *Pediatr Pulmonol*. 2016;51:582-7.
- **Miller KA**, Kimia A, Monuteaux MC, Nagler J. Factors associated with misplaced endotracheal tubes during intubation in pediatric patients. *J Emerg Med*. 2016;51:9-18
- Miloslavsky EM, Boyer D, **Winn AS**, Stafford DE, McSparron JL. Fellows as teachers: raising the educational bar. *Ann Am Thorac Soc*. 2016;13:465-8.
- Natarajan P, **Gold NB**, Bick AG, McLaughlin H, Kraft P, Rehm HL, Peloso GM, Wilson JG, Correa A, Seidman JG, Seidman CE, Kathiresan S, Green RC. Aggregate penetrance of genomic variants for actionable disorders in European and African Americans. *Sci Transl Med*. 2016;8:364ra151.
- **Pica N**, Bourgeois F. Discontinuation and nonpublication of randomized clinical trials conducted in children. *Pediatrics*. 2016;138: e20160223.
- **Peltz A**, Hall M, Rubin DM, Mandl KD, Neff J, Brittan M, Cohen E, Hall DE, Kuo DZ, Agrawal R, Berry JG. Hospital utilization among children with the highest annual inpatient cost. *Pediatrics*. 2016;137:1-10.
- Reske-Nielsen C, **Schlosser K**, Pascucci RC, Feldman JA. Is it exertional heatstroke or something more? A case report. *J Emerg Med*. 2016;51:e1-5.
- **Rixe NS**, Rixe J, Glick J, Lehman E, Olympia RP. Publishing trends in the field of pediatric emergency medicine from 2004 to 2013. *Pediatr Emerg Care*. 2016;32:840-5.
- Ronai C, **Baker AL**, Friedman KG, Fulton DR, Newburger JW,

## BOSTON COMBINED RESIDENCY PROGRAM

- Lang P. Prevalence of undiagnosed structural heart disease in children undergoing echocardiography for Kawasaki disease. *Clin Pediatr (Phila)*. 2016;55:557-9.
- Ronai C, Hamaoka-Okamoto A, **Baker AL**, de Ferranti SD, Colan SD, Newburger JW, Friedman KG. Coronary artery aneurysm measurement and Z score variability in Kawasaki disease. *J Am Soc Echocardiogr*. 2016;29:150-7.
  - Rose-Jacobs R, **Fiore JG**, de Cuba SE, Black M, Cutts DB, Coleman SM, Heeren T, Chilton M, Casey P, Cook J, Frank DA. Children with special health care needs, supplemental security income, and food insecurity. *J Dev Behav Pediatr*. 2016;37:140-7.
  - **Rowe RG**, Guo D, Lee M, Margossian S, London WB, Lehmann L. Cytomegalovirus infection in pediatric hematopoietic stem cell transplantation: risk factors for primary infection and cases of recurrent and late infection at a single center. *Biol Blood Marrow Transplant*. 2016;22:1275-83.
  - Samuels-Kalow M, Rhodes K, Uspal J, **Reyes Smith A**, Hardy E, Mollen C. Unmet needs at the time of emergency department discharge. *Acad Emerg Med*. 2016;23:279-87.
  - **Sanford E**, Wolbrink T, Mack J, Grant Rowe R. Severe tumor lysis syndrome and acute pulmonary edema requiring extracorporeal membrane oxygenation following initiation of chemotherapy for metastatic alveolar rhabdomyosarcoma. *Pediatr Blood Cancer*. 2016;63:928-30.
  - **Seidel NE**, Harper BD. A 5-month-old boy with postprandial emesis. *Clin Pediatr (Phila)*. 2016 [Epub ahead of print].
  - Sen DR, Kaminski J, Barnitz RA, Kurachi M, **Gerdemann U**, Yates KB, Tsao HW, Godec J, LaFleur MW, Brown FD, Tonnerre P, Chung RT, Tully DC, Allen TM, Frahm N, Lauer GM, Wherry EJ, Yosef N, Haining WN. The epigenetic landscape of T cell exhaustion. *Science*. 2016;354:1165-9.
  - **Shah NH**, Schneider TR, DeFaria Yeh D, Cahill KN, Laidlaw TM. Eosinophilia-associated coronary artery vasospasm in patients with aspirin-exacerbated respiratory disease. *J Allergy Clin Immunol Pract*. 2016;4:1215-9.
  - Sheen YH, Rajagopalan G, Snapper CM, Kita H, Wi CI, **Umaretiya PJ**, Juhn YJ. Influence of HLA-DR polymorphism and allergic sensitization on humoral immune responses to intact pneumococcus in a transgenic mouse model. *HLA*. 2016;88:25-34.
  - **Shulman DS**, Lee MA, Lehmann LE, Margossian SP. Outcomes following bone marrow transplantation in children with accelerated phase or blast crisis chronic myelogenous leukemia in the era of tyrosine kinase inhibitors. *J Pediatr Hematol Oncol*. 2016;38:610-4.
  - **Shumskiy I**, **Raju RM**, Tschudy MM. Home visits: advancing pediatric training by preserving past traditions. *Pediatrics*. 2016 [epub ahead of print]
  - **Tjoeng YL**, Mickley M, Prentiss K. Chest pain in the setting of altered mental status. *Pediatr Emerg Care*. 2016;33:181-4.
  - **Tsai JW**. Family matters. *JAMA Pediatr*. 2016;170:641.
  - **Tsai JW**. Processing death. *JAMA Oncol*. 2016. [Epub ahead of print]
  - **Tsai JW**, Muindi F. Towards sustaining a culture of mental health and wellness for trainees in the biosciences. *Nat Biotechnol*. 2016;34:353-5.
  - **Umaretiya PJ**, Swanson JB, Kwon HJ, Grose C, Lohse CM, Juhn YJ. Asthma and risk of breakthrough varicella infection in children. *Allergy Asthma Proc*. 2016;37:207-15.
  - **Veit L**, Amberson M, Freiburger C, Montenegro B, Mukhopadhyay S, Rhein LM. Diagnostic evaluation and home monitor use in late preterm to term infants with apnea, bradycardia, and desaturations. *Clin Pediatr (Phila)*. 2016;55:1210-8.
  - Wachman EM, **Schiff DM**. Bringing attention to a need for a standardized treatment and weaning protocol for neonatal abstinence syndrome. *Transl Pediatr*. 2016;5:12-5.
  - Wertz MH, **Winden K**, Neveu P, Ng SY, Ercan E, Sahin M. Cell-type-specific miR-431 dysregulation in a motor neuron model of spinal muscular atrophy. *Hum Mol Genet*. 2016;25:2168-81.

### Research Tracks

The BCRP supports both research pathways approved by the American Board of Pediatrics.

#### Accelerated Research Pathway (ARP)

This pathway is for residents committed to an academic career as a physician-scientist. It allows the resident to complete pediatrics training in two years in exchange for adding an extra year of research as a fellow. No exam is required. Since almost all fellows training to be physician-scientists do more than three years of fellowship research anyway, this is an attractive pathway.

#### Integrated Research Pathway (IRP)

This pathway is open to those with MD/PhDs or PhD-like research experience. The pathway allows residents to combine 24-months of clinical residency with up to 12-months of research, beginning after the PL-1 year. At least 5-months of the research must be in the PL-3 year.

These pathways are described in detail in the American Board of Pediatrics website.

### Eligibility for Research Tracks

Technically, intern applicants cannot be guaranteed acceptance into these pathways before the beginning of their internship since clinical performance and PL-1 in-service exam scores are used to judge a candidate's suitability for accelerated training. However, almost all residents who wished to pursue one of these pathways over the past decade have been allowed to do so.

Housestaff who wish to pursue these pathways instead of a senior year, must notify Ted Sectish by January 1st of their internship year and demonstrate superior clinical competence and scores on the In Training Examination of the American Board of Pediatrics that predict successful passage of the general pediatrics certifying examination. The Executive Committee oversees the selection process for interested candidates. Decisions are made in November of the intern year.

## BOSTON COMBINED RESIDENCY PROGRAM

### Special Tracks

The BCRP makes every effort to allow residents the freedom to pursue special pathways that meet their needs. For example, some residents have extended their period of training for family reasons, and a few have left the program for a year to undertake or complete a project.

### Physician-Scientist Fellowship Training

During the past 9 years **96.3%** of physician-scientist residents who have wanted to remain at Boston Children's Hospital for their fellowship training have been able to do so. So, while we do not have a program that guarantees a fellowship position for incoming residents, as some institutions do, **for all practical purposes, incoming physician-scientists (and indeed most housestaff) who want to remain for fellowship are able to do so.**

## The Personal Touch

The BCRP is a family made up of over 150 residents, program directors, and administrative staff. Many residents have recently moved to Boston, some with partners and young children and all are working hard to balance their busy professional and personal lives. We value providing a strong support network for our residents, and we strive to give the BCRP community as many opportunities as possible to spend time together outside the hospital.

### Intern Orientation

New interns participate in a unique 12-day Orientation before their first day of work. This is dedicated to helping interns explore Boston, learn their way around the hospitals, take care of logistics, and – most importantly – get to know their new family so they can hit the ground running having already forged many of the friendships that will continue throughout the rest of their lives.



*Intern orientation: new white coats*

During Orientation, incoming interns participate in structured modules that highlight a variety of important areas such as communication, professionalism, humanism, resident wellness, individualized learning plans, and procedural competency; complete certification courses in PALS and NRP; get oriented to the wards and emergency departments in which they will soon be working; and enjoy a variety of social activities, such as:

- Traditional New England clambake and lobster fest
- Family barbecue and lawn games
- Red Sox games
- Chief Family Dinners
- Happy Hours
- And more...

### Advisors and Mentorship

The BCRP strives to provide the best possible educational experience for every resident, to foster personal and professional growth, and to encourage the pursuit of individual passions. Our program prides itself on carefully guiding residents along their chosen career path in order to help them become leaders in clinical care, research, medical education, quality improvement, advocacy, or other areas of their choosing. We take a dual approach, with advising being provided primarily through the five “Chief Families,” and mentorship being accomplished primarily through the five Academies discussed elsewhere.

#### Advising

Each of the Chief Families includes about 30 residents and is led by a Chief Resident and two faculty advisors. At least four times per year, residents meet individually with their Chief Family leadership to discuss rotation feedback and peer and faculty Milestones assessments, progress towards individual personal and professional goals, and any issues they may encounter. The advisors often provide guidance on career choices and advocate on behalf of the resident in many forums.

#### Mentorship

While mentorship overlaps significantly with advising, the primary focus of mentorship through the Academies is professional development and career planning. Indeed, it is a cornerstone of the Academies. The Faculty Advisors, affiliated faculty members, and Chief Residents who lead each Academy organize specific opportunities for residents to identify mentors through networking events, career nights, and research-in-progress events, among others. Residents are encouraged to identify mentors that share their interests, or the Academy leadership may assign a mentor at the resident's request.



## BOSTON COMBINED RESIDENCY PROGRAM

### Housestaff Lounge

The Housestaff Lounge at Boston Children's Hospital is a recently renovated, casual space dedicated to BCRP residents. It contains workspaces with computers, a printer, a fax machine/scanner and individual mailboxes; a Keurig coffee machine with free coffee and tea; a full-size refrigerator and microwave; and a 50-inch HD television with surround sound. Residents use this room to relax, gather for informal meetings, and for various morning and lunchtime conferences.

### Retreats

House officers participate in a variety of different kinds of retreats throughout the three years of residency. These provide time for resident bonding, reflection on education, and discussion of issues important to the entire residency.

#### Intern Retreat

All interns participate in an overnight retreat in the Fall to relax, reflect, and enjoy each others' company in a more casual setting after the first three months of residency. It has been held at different locations including faculty members' summer homes (sans the faculty member), rustic summer camp facilities, or lodges far enough from Boston to serve as a welcome escape from city life.

Recently, the interns have spent the night on Cape Ann and Squam Lake, enjoying activities including BBQ, kayaking, swimming, and hiking.

#### Fall Housestaff Retreat

All residents receive coverage to attend this all-day, all-housestaff retreat, which has traditionally involved activities that promote bonding across residency classes and develop their professional or clinical skills. Fellows and attendings cover clinical services while residents are at the retreat. Resident input is solicited to plan activities and topics of discussion, such as curricular changes, how to be an effective teacher on the wards, and more recently, dedicated time for Academy-specific skills building.

#### Spring Housestaff Retreat

The Spring all-day, all-housestaff retreat is also held off the hospital premises. This retreat is typically used as a forum for reflecting on the year, discussing new topics in pediatrics, and brainstorming ways to improve the residency experience. In recent years, residents have explored and debated cases of medical ethical dilemmas and hosted leaders in pediatric public health such as Judith Palfrey. Each of the Fall and Spring retreats is capped off by a Happy Hour at a location of the residents' choosing.



*The Cape Ann site of many intern retreats*

#### Rising Junior Orientation

This retreat is an opportunity for interns to enjoy time with classmates before graduating into the PL-2 year. It takes place in the spring and focuses on discussions about new experiences interns can expect in the junior year, including increased autonomy, higher patient acuity, and intern and medical student supervising.

#### Rising Senior Orientation

This is a springtime junior-only retreat focused on building skills essential to the role of the senior resident. Usual topics include: leadership and communication skills; principles of medical education and "resident-as-teacher" skills; tips on licensure and career planning; and recertification in NRP and PALS. Both the Rising Junior and Rising Senior orientations end with Happy Hour and time to socialize as an entire resident class.

### Family Friendliness

#### Parenting as a Resident

The BCRP actively supports residents who are parenting during their training years. As a program, we recognize the difficulties inherent in managing the dual roles of parent and house officer. We are proud to offer a variety of supports to help residents strike their work-family balance with grace and confidence.

- **Peers Who are Parents.** You will find parents of infants, toddlers, school-age, and even college-age children among fellow residents. As a group they socialize and share information about how to strike the right work-family balance.
- **Maternity and Paternity Leave.** The program offers paid parental leave. With advance scheduling anywhere from 8 to 12 weeks usually can be accommodated for

## Intern Orientation



*Getting to know you games*



*Famous Dr. Vinci waffles*



*New name tags*



*New pagers*



*Practicing procedures*



*Learning proper technique for completing the New York Times Crossword*



*Bad breath protection*



*REALLY bad breath protection*



*Scavenger Hunt*



*Dinner at the Vinci's*



*New England Clambake*



## Intern Orientation



*Color Coded Chief Families*



*Softball*



*Red Sox Game*

## Intern Retreat



*Grilling*



*Hanging out*



*Beach football*



*Family style meals*



*Playing Scatagories*



*Breakfast together*



*Kayaking*



*Group hikes*



*Nothing but the finest accommodations*



## BOSTON COMBINED RESIDENCY PROGRAM



**Significant others (here in their Sig-O T-shirts) are included in all social activities**

the primary caregiver. Although the maximum time is limited by training requirements of the American Board of Pediatrics, program leadership works with all residents to accommodate additional clinical time if the resident extends the period of training to include the extra leave.

- **Flexible Scheduling.** The BCRP has assisted several residents with arranging half or three-quarter time schedules designed to allow completion of residency at a slower pace over a longer interval. Although we cannot always guarantee flexible scheduling, we try to accommodate such requests to the best of our ability. The BCRP has more residents on flexible schedules than any other program, as noted in an article in Newsweek magazine.
- **Supportive Colleagues and Mentors.** House officers returning to work after the birth of a child report that their colleagues and mentors are supportive during the transition back, including attitudes towards breastfeeding and the short but frequent absences it requires from the wards.
- **Lactation Support.** Both Children's Hospital and Boston Medical Center have extensive lactation resources, including dedicated RN lactation consultants and multiple comfortable, quiet areas in which mothers can pump in private. Pumps and associated accessories can be purchased from the hospital at a discount.
- **Child Care.**  
**Children's Hospital Child Care Center.** Children's Hospital has an excellent affiliated day-care center, that is available to Categorical track residents (though there is usually a waiting list). It is directed by Donna Warner ([donna.warner@childrens.harvard.edu](mailto:donna.warner@childrens.harvard.edu)) and is located 21 Autumn Street, just a short walk from



**Seniors with babies**

Children's Hospital. It is open year round on weekdays from 6:30 AM to 6:00 PM. Phone: (617) 355-6006.

**Bright Horizons Family Center at Landmark.** The center is located at 401 Park Drive, 4th Floor West, Boston, MA 02215, only a few blocks from the medical area, is open weekdays from 6:30 AM to 6:30 PM and serves children from infancy to preschool. Phone: (617) 450-0790. The hospital has a contractual relationship that reserves 20 slots for BCH employees.

A subsidy is offered to benefit eligible employees if they enroll at Children's Hospital Child Care Center or Bright Horizons at LandMark and meet the necessary criteria.

**The LMA Family Childcare Network** is a network of licensed family childcare providers who provide childcare in their homes for families who work in the Longwood Medical area. Network Family Childcare Providers with varying vacancies are in the following towns: Brookline, Roxbury, Milton, Hyde Park, Needham, and Dorchester. Contact Nina Dickerman, Director of Family Child Care Institutional Services Nurtury, directly at (617) 695-0700 x244 or at [ndickerman@nurturyboston.org](mailto:ndickerman@nurturyboston.org). Nina can also direct you regarding the Bromley Heath Center in Jamaica Plain, as well as other Nurtury owned centers.

**Backup Care.** The hourly cost of adult and childcare through Care.com back-up care is now only \$7.50/hour! Once the care is complete and the hours have been confirmed, your credit card will be charged for your hourly co-payment. You may use up to a combined total of 15 days of backup child care and adult care per year (October 1 through September 30). Sign up using your Boston Children's Hospital email address at [bch.care.com](http://bch.care.com).

A similar benefit through Care.com is available to UHAT residents through BMC. Last-minute care for work related needs such as school snow days, sick days, school vacation, or if your normal child or adult care

## BOSTON COMBINED RESIDENCY PROGRAM

falls through are included at \$6.00/hr for in-home child and adult backup care, and \$10.00/day/child for in-center backup childcare. You may use up to 10 days per year in any combination of backup care.

**Au Pair Services.** Cultural Care Au Pair (CCAP) is the largest Au Pair company in the world, with more than 90,000 au pairs in the U.S. CCAP is an affordable child care option for benefits eligible Boston Children's employees. CCAP is offering a \$500 discount to employees new to their program. They also offer our employees customized consultations and webinars at no cost. For more information, please contact a program consultant at 800-333-6056 x 3605 or at [info.culturalcare.com/childrens](http://info.culturalcare.com/childrens).

- **Community Offerings for Families.** Boston and the surrounding communities provide a wide array of enjoyable and enriching opportunities for kids, such as playgrounds and parks, the Aquarium, the Children's Museum, the Science Museum, and numerous day trips outside the city.
- **Schools.** Many of the local school systems, including Brookline and Newton, enjoy nationwide recognition for excellence.

## Benefiting the Community

The BCRP is actively engaged in the Boston community and committed to providing outstanding care for Boston's children. Both Boston Children's Hospital and Boston Medical Center are located near large urban areas and in many ways, both institutions become community hospitals for residents from Roxbury, Dorchester and Mission Hill where many families are living at or below the poverty line. The majority of children who live in Boston receive their primary health care from one of our institutions. Boston Medical Center is the largest safety net hospital in New England and Children's Hospital's Primary Care at Longwood is the largest provider of

pediatric primary care to children in the city, with 11,000 patients, 65% from low income neighborhoods. In addition to serving Boston's urban population clinically, residents receive additional training and immersive community experiences in the Keystone quarter as part of the Advocacy, Adolescent Medicine, and Child Development curricula.



**Resident with flowers from a grateful family.**

Residents often organize and participate in other community efforts including supporting local organizations like Forest Hill Runners and Best Buddies, joining with pediatric residents from other programs in the state for the Residents and Fellows Day at the State House, and engaging in fundraising efforts by cycling in the annual Rodman Ride and running in the Boston Marathon



**Rodman Ride for Children, which raises money for social services for at-risk youth**

## Community Health and Advocacy Rotation

The Community Health and Advocacy Rotation is based at Boston Medical Center and is incorporated into the Keystone Quarter during the PL-1 year. The curriculum focuses on preparing BCRP residents to screen for and address the social determinants of health. screening for and addressing social determinants of health. Through the advocacy rotation residents build familiarity with the many resources available to patients at both institutions and in the Boston community. Residents also receive training in legislative advocacy, participate in skill building workshops, and learn through structured community exercises that complement targeted didactic training in topics such as disability services, family law, health insurance, housing, hunger and nutrition, and immigration services. In addition, residents learn to seamlessly incorporate their advocacy skills into their primary care clinic, developmental and behavioral pediatrics clinics, and adolescent clinics during the Keystone Quarter so that advocacy is seen as central to being a pediatrician rather than separate from clinical duties. Residents also have the opportunity to explore careers in advocacy and public health at the local, national and global levels.

For residents with a special interest in legislative advocacy, elective opportunities at both the local and national levels can be arranged.



## BOSTON COMBINED RESIDENCY PROGRAM

### Some Examples of Recent Resident Advocacy Accomplishments

- Designed and implemented a curriculum called “Health Equity Rounds” – a quarterly case conference to address implicit bias and structural racism in medicine. The concepts behind this conference have been presented at national meetings
- Worked with a local charter middle school on a sleep hygiene project. Students with daytime sleepiness or behavioral issues were identified by the teaching staff. Each student received a wrist band accelerometer (FitBit) to track sleep and activity, and in monthly visits we reviewed the data together and did counseling on healthy sleep habits.
- Partnered with the Boston Children's Community Asthma Initiative to target health related social needs to improve asthma outcomes in this vulnerable population of low-income families with chronically sick children. We did this by implementing a standardized social screener to better target family's needs as well as increasing access to federal poverty relief programs in partnership with StreetCred.
- Testified at Boston City Council to advocate for safer streets for cycling. Vision and views were featured in Go Boston 2030 campaign to guide the city's next steps in transportation planning. Developed a research/advocacy/policy session addressing food and transportation as medicine
- Founded the “CIR Center for Social Determinants of Health” at Boston Medical Center, a resident-led, interdisciplinary group of providers whose shared mission is to address disparities in healthcare by improving awareness of the social determinants of health.
- Founded the Advocacy through Policy residency group to partner with the Boston Children's Hospital Office of Government Affairs in advocating for policies to benefit child health.
- Worked with the Center of Medicaid and Medicare Services on health policy issues at a federal level.
- Worked with a community health center to improve travel screening for immigrant patients.
- Received a Picker Gold Challenge Grant to support the development of patient care initiatives and best practices for “Improving Family-Centered Care for Substance Exposed Newborns and their Mothers”
- Started a resident interest group to support urban families around the impact of community gun violence, including a fundraiser to support the community organization L.I.P.S.T.I.C.K.
- Designed and implemented a quality improvement

### Pediatricians and Politics: Advocating for Pediatric Research and Children's Health Insurance



***UHAT residents on a RAP afternoon***

Urban Health and Advocacy Track (UHAT) residents spent a Research, Advocacy and Policy (RAP) afternoon last Fall with Boston Children's Office of Government Relations staff Amy DeLong and Kate Audette, learning how to lobby and speak to politicians. They put their skills to use that day, meeting with staffers in the offices of Senator Elizabeth Warren and Senator Ed Markey to advocate for legislation that would strengthen the NIH's commitment to pediatric research.



***Elyse Portillo (right) and Amanda Stewart (second from right) at The Massachusetts State House***

BCRP residents Elyse Portillo and Amanda Stewart at the Massachusetts State House after they and two other Boston Children's Hospital providers shared testimony on a bill that would improve the way the Children's Medical Security Plan—a safety net insurance plan for underserved children—is structured, allowing for a flexible program that would better serve the needs of children in the Commonwealth. Elyse and her fellow advocates from Boston Children's shared patient stories as they urged policymakers to move forward on this important legislation.



### REACH: Resident Education Advancing Communication in Hospitals



**BCRP residents Zeena Audi and Neeru Narla (second and third from the right in the front row) and their colleagues**

Confronted with the fact that patients with limited English proficiency are more likely to suffer adverse events and the realization that residents in the BCRP are caring for

an increasing portion of non-English speaking patients, BCRP residents Neeru Narla and Zeena Audi created a cultural communication curriculum to improve the quality of care delivered to ethnically and linguistically diverse pediatric patients and their families. After completing a needs assessment of residents and interpreters and conducting focus groups with interpreters from different cultures, they realized that the obstacles to effective communication identified by interpreters were similar across cultures. They distilled these gaps in culture knowledge and interpreter interaction into the theme of a “10 and 10” curriculum – ten tips on working with interpreters and 10 tips on working with multicultural patients. Every BCRP intern rotating on the BMC Pediatric Ward team will now experience this curriculum, which combines interpreter feedback, an online virtual classroom, and simulation to disseminate the “10 and 10” and provide opportunities for residents to practice these skills. Neeru and Zeena also presented their curriculum to a national audience at the Annual Meeting of the Association of Pediatric Program Directors.

### StreetCred



**Michael Hole and Lucy Marcil**

One of every five children in the United States is growing up poor, which means America's future faces increased risk of preventable disease, poor school performance, and loss of future economic productivity. In response, residents Michael Hole and Lucy Marcil teamed up and founded StreetCred ([www.mystreetcred.org](http://www.mystreetcred.org)), a social impact organization highlighted by Forbes Magazine and NPR. StreetCred is building one-stop shops of anti-

poverty tools to help low-income families visiting pediatric clinics access basic resources and build assets while they wait on their doctor. In its first four months, StreetCred prepared tax returns and led voter registration for patients' families, ultimately returning nearly \$400,000 of Earned Income Tax Credit and Child Tax Credit to caregivers raising children. StreetCred's Research Team is studying the program's impact on long-term childhood toxic stress and health outcomes, and the organization has plans to expand its services to setting up savings accounts and bonds, financial literacy, filing for health insurance, and food, housing, utilities, and family budgeting assistance in Boston and other urban settings across the United States. To-date, StreetCred is financially supported by BMC's Department of Pediatrics, BMC's Philanthropic Trust, BMC's Committee on Residents and Interns, a Boston Children's Hospital's Fred Lovejoy Award, the American Academy of Pediatrics, and several private donors. Six BCRP residents devoted their protected advocacy time to StreetCred during the 2016 tax season.

## BOSTON COMBINED RESIDENCY PROGRAM

project on the BMC pediatric service to facilitate family centered rounds for families whose primary language is not English

- Presented a workshop on social determinants of health screening in pediatric clinic at a national meeting, in collaboration with several other residency programs
- Received an International Elective Grant from the American Academy of Pediatrics to support work on newborn care in Kenya.
- Presented a workshop on writing in residency at a national meeting and served as the Editor of the trainee section of Pediatrics.
- Started a project to bring home visits to children in the community as an alternative to the traditional primary care system.
- And numerous residents have published articles in medical journals and public news sources on poverty and health, health disparities, and advocacy training.

### Health Equity Rounds

The Health Equity Rounds program is a Grand Rounds conference series that provides a forum for interdisciplinary discussion of cases that are impacted by implicit bias and structural racism. Participants learn how to analyze the effects of implicit bias and structural racism in clinical scenarios and describe the historical context and present-day role of structural racism and its impact in the health care system. Resident conference leaders employ evidence-based tools to help participants recognize and mitigate personally held implicit biases, and leverage these skills to reduce the impact of bias on doctor-patient and interprofessional relationships as a means to reduce structural racism at the institutional level.

## International Opportunities

### BCRP Global Child Health Initiative

The goals of the BCRP Global Child Health initiative are to increase knowledge and awareness of global health issues; to provide specialized knowledge, skills and mentorship to residents with career interests in global child health; and to provide high-quality opportunities for meaningful international clinical experiences. The initiative offers exposure to international and refugee patients, as well as faculty working on cutting-edge, grass-roots policy and health service delivery implementation in the developing world. It has three major components:

- Global health teaching curriculum for all BCRP residents delivered during the PL-1 Keystone blocks and during noon conferences.



*Examining a patient in Haiti*

- Global health electives at supervised, affiliated international sites with pre-departure preparation and post-travel debriefing for interested BCRP residents.
- The Global Health Pathway, which includes dedicated mentorship for global health careers, flexibility in call-free elective time to arrange away rotations in both junior and senior years, and a robust curriculum delivered during individualized resident learning time, for two residents per year (from either categorical or UHAT tracks).

Additionally, residents can apply for a traditional post-residency Global Pediatric Fellowship in Health Services Delivery through Boston Children's Hospital.

### Global Health Teaching Curriculum

The BCRP global health teaching curriculum provides didactic and case-based instruction on the fundamentals of pediatric international health, integrated throughout existing noon conferences and resident lectures. During the PL-1 year, additional educational sessions occur during the advocacy section of the Keystone blocks. Residents in the Urban Health and Advocacy Track are also exposed to topics in global health through monthly Research, Advocacy and Policy sessions.

### Global Health Seminar Series

The Global Pediatrics Program at Boston Children's Hospital hosts a monthly seminar series pertaining to child health in low-resource settings. Additionally, the Global Health Initiative Seminar Series, which is jointly held by Dana Farber Cancer Institute and Boston Children's Hospital, has a regular seminar series that residents are welcome to attend. Please contact Ton Tran (Ton.Tran@childrens.harvard.edu) for more information.

### Global Health Clinical Skills Week

BCRP residents are invited to participate in many of the

## BOSTON COMBINED RESIDENCY PROGRAM

sessions offered for BCH Global Pediatric Fellows during a clinical skills week in October of each year. Topics include master training for Helping Babies Breathe, trauma simulation for resources limited settings, and didactics on global health topics.

## BMC International Health Clinics

Boston Medical Center has an International Refugee Clinic, Travel Clinic and Tuberculosis Clinic. Residents have the opportunity to rotate through these clinics during their elective time.

## BCH Global Health Program

Boston Children's Hospital's Global Health Program is summarized in their downloadable [2016 Annual Report](#).

## Global Health Electives

Residents have elective time in their second and third years, during which they can pursue clinical rotations at international sites. Our goal is that all residents interested in global health rotations will receive preparation and support to facilitate their participation in elective rotations in resource limited settings that are educational, safe, and responsive to their host communities. The purpose of these rotations is to teach residents about health care in an under-resourced setting with a focus on improving their knowledge about major causes of global pediatric morbidity and mortality, improving clinical skills, and increasing residents' understanding of how culture, ethics, policies and health systems can affect pediatric health. Housestaff may take advantage of several established partnerships or they may arrange rotations or research projects at other sites with faculty mentorship. A database of institutional, regional and national grants is available to assist residents with funding. The more established programs are described here. The BCRP can only arrange global health rotations for current BCRP residents.



**Central Hospital University of Kigali, Rwanda**

### Rwanda

Program: University of Rwanda Pediatrics Dept  
Site: Centre Hospitalier Universitaire de Kigali (CHUK; University Teaching Hospital of

Kigali), Kigali, Rwanda

Minimum Time: 3-4 weeks

Activities: Residents work alongside pediatric faculty from Rwanda or US faculty with the Rwanda Human Resources for Health Program as well as residents, medical students and staff in the main tertiary referral hospital for the country. Residents can choose between the pediatric emergency dept (through which almost all admissions come) and Inpatient wards. The wards include a high dependency unit, a 3-bed PICU with ventilators, a NICU (without ventilators), and general wards including oncology, cardiology, malnutrition, chronic and surgical wards.

Cost: Plane ticket, lodging, \$200 administrative fee

Language: No requirement, French is helpful but all education is conducted in English

Contact: Kim Wilson and Samantha Rosman at Boston Children's Hospital.



**Lao Friends Hospital for Children**

### Laos

Program: Lao Friends Hospital for Children  
Site: Lao Friends Hospital for Children, Luang Prabang, Laos. Luang Prabang (~54,000 pop) is a world heritage site in north central Laos and is the capital of its province.

Minimum Time: 4 weeks

Activities: Working alongside Laos physicians and nurses providing clinical care in urgent/outpatient, inpatient, ER and postoperative care.

Cost: Flight (\$2,000), accommodations (~\$500/month)

Language: Hospital practices in English

Contact: Michelle Niescierenko at Boston Children's Hospital.

### Tanzania

Program: Muhimbili University Pediatrics Dept  
Site: Muhimbili National Hospital, Dar es



## BOSTON COMBINED RESIDENCY PROGRAM



**Muhimbili National Hospital in Tanzania**

Salaam, Tanzania

Minimum Time: 3-4 weeks

Activities: Residents work alongside pediatric faculty, residents and staff in a large department that serves as a referral center for the country. They can choose to work in subspecialty clinics, the acute care ward, general ward, NICU, or the diarrhea ward. They can also focus on research or quality improvement projects, and enhancing education.

Cost: Plane ticket, lodging, \$200 administrative fee

Language: No requirement

Contact: Christiana Russ at Boston Children's Hospital



**Northern Navajo Medical Center**

### Indian Health Services

Program: Indian Health Services Pediatric Program

Site: Northern Navajo Medical Center, Shiprock, New Mexico

Minimum Time: 1 month

Activities: The pediatric rotation includes mostly outpatient urgent care and primary care visits. Residents may also observe numerous community-based healthcare initiatives, including school visits. This is a unique opportunity to work with a medically underserved community with a distinctive culture while gaining outpatient primary care and public health perspectives.

Language: No requirement

Contact: Christiana Russ at Boston Children's Hospital

### Global Health Pathway

Starting in academic year 2018-2019, two residents per year will be selected via a competitive application process for the Global Health Pathway of the BCRP. The goal of this pathway is to provide each resident with mentorship for global health careers, with dedicated individualized academic afternoons during retreats (replacing a BCRP Academy), to provide a community including dedicated faculty mentors, and to support the generation of additional resident-driven curricula, including journal clubs and networking events. Residents in this pathway will work with their mentors to help plan 4 weeks of contiguous call-free elective time for global health electives/fieldwork in the junior year. Seniors will have 6 weeks of contiguous call-free time for global health fieldwork. GH Pathway residents will also be guaranteed to have either elective or ADB rotations during October of either the junior or senior year to allow them to attend the Global Health Skills week. Residents will present a final project on their global health work near the end of senior year. Incoming interns in either the categorical or UHAT tracks will apply immediately after matching. More information about the Global Health Pathway application process is available [here](#).

### Fellowships

#### Boston Children's Hospital Postgraduate Global Pediatric Fellowship in Health Service Delivery

The Global Pediatrics Program offers a postgraduate fellowship program in global health, in collaboration with [Partners in Health](#). Fellows combine work in Laos, Haiti and Rwanda with clinical service and course work in Boston. While abroad, fellows work with local colleagues to improve the quality of pediatric services. Fellows share their clinical experience through bedside and didactic teaching, and work with local staff to implement specific programs and projects. Areas of focus for the fellows' have included prevention of maternal-to-child transmission of HIV, neonatology, oncology, and care of children with chronic and non-communicable disease. This focus on global health service delivery provides critical support to our partners and provides fellows with an opportunity to develop skills and experience in clinical care in low resource settings, in medical education, and in program design, management and evaluation. Contact Kim Wilson ([kim.wilson@childrens.harvard.edu](mailto:kim.wilson@childrens.harvard.edu)), Fellowship Director, at Boston Children's Hospital for more details.

## Global Health Experiences





## Global Health Experiences





## BOSTON COMBINED RESIDENCY PROGRAM

### Grants for Global Travel and Projects

The Boston Children's Hospital Global Health Program was founded in 2013 to gather global health practitioners from across the hospital into a multidisciplinary approach to our global work. As part of this initiative the program provides grant funding for residents. Residents can apply for grants of up to \$3,000, \$5,000 or \$10,000. The Schliesman and Von L Meyer Funds are also specifically dedicated to fund overseas experiences of residents and several residents per year receive up to \$1,000 each for this purpose.

#### Recent Examples of Funded Research Projects:

• Developing protocols for fever in patients with sickle cell disease in West Africa	Ghana
• Qualitative research on community care of newborns	Tanzania
• Pediatric and endocrine practice with Navajo Indians	New Mexico
• Teaching neonatal resuscitations	Indonesia
• Developing an OpenPediatrics cardiology module for residents	Rwanda
• Evaluation of clinical outcomes and predictors of mortality in an acute care unit	Tanzania
• Developing a code card for resident use	Tanzania
• Research on neonatal care in the community	Indonesia
• Diarrhea illness management and research	Bangladesh
• Newborn care improvement at a peri-urban hospital in Nairobi	Kenya
• Training nurses in neonatal resuscitation in rural Peru	Peru

In the past few years, residents have also participated in rotations in Jamaica, Egypt, Rwanda, India, and South Africa.

## Diversity and Inclusion

The Boston Combined Residency Program in Pediatrics (BCRP) links the pediatric training programs of Boston Children's Hospital and Boston Medical Center. The strength of Children's Hospital, one of the world's leading pediatric research and training institutions and a designated LGBTQ Healthcare Leader by the Healthcare Equality Index, is combined with the passion and commitment of Boston Medical Center's tradition of excellence in clinical research and primary care for underserved populations.



The BCRP is committed to reducing healthcare disparities and creating a workforce that reflects the diversity of our patient populations. Providing children and families with the very best care requires an understanding of their physical, emotional, and cultural needs. For this reason, we seek diverse residents who possess an intellectual curiosity, a passion for medicine, and a

compassionate commitment to patients and their families.

The BCRP embraces all forms of diversity including, but not limited to, race, ethnicity, disability, socioeconomic status, gender identity, and sexual orientation. We are committed to recruiting and supporting a diverse resident workforce and have outlined the following goals:

- To increase the number of BCRP housestaff from underrepresented minority groups
- To provide support to our trainees that are underrepresented in medicine through faculty engagement, mentorship, education, and resident attendance to national conferences such as SNMA and LMSA.
- To shape the professional development of a cadre of minority physicians who will become leaders in all aspects of pediatrics including patient care, research, medical education, health care policy and child advocacy.

### Diversity Council

The Diversity Council is a resident-led and faculty supported group that works to achieve the goals outlined above. The council is made up of residents and faculty who share diverse backgrounds, as well as their allies. All residents and faculty are invited to join the Diversity Council.

BCRP's Diversity Council is divided into three working groups:

- *Recruitment*: Focuses on creating an inclusive environment for incoming applicants while also organizing opportunities for applicants to meet resident and faculty members of the Diversity Council through dinners and hosting programs.
- *Education*: Reviews our curriculum to ensure that we are spending time educating our residents and faculty on topics that will improve their ability to care for our diverse patient populations.

## BOSTON COMBINED RESIDENCY PROGRAM



**Three residents celebrating the end of internship**

- **Community:** Fosters and supports our community within the BCRP by providing opportunities for mentorship, collaboration with pipeline programs within our partner institutions, and ensuring that our residents are represented at national and regional conferences such as LMSA and SNMA.

The Diversity Council is led by faculty and resident leaders of each working group, as well as a Diversity Chief Resident who is dedicated to these ongoing efforts each year.

We also partner with several groups both in our hospitals and our associated medical schools, including:

- Harvard Medical School's [Office for Diversity Inclusion](#) and Community Partnership
- [Office of Diversity and Multicultural Affairs](#) at Boston University School of Medicine
- Boston Children's [Diversity and Cultural Competency Council](#)
- Boston Medical Center's [Office of Minority Physician Recruitment](#)

### Diversity Dinners

On the evenings before interviews, applicants with diverse backgrounds are invited for an informal dinner to meet housestaff, fellows, and faculty. Applicants have rated these dinners very highly because they provide the opportunity to discuss a wide range of issues with current members of the BCRP community in a relaxed atmosphere.

### Minority Faculty

- Adolphe, Soukaina MD, BMC, Ambulatory Pediatrics
- Allende-Richter, Sophie, MD, BCH, General Pediatrics
- Alvarez, Norberto MD, BCH, Neurology
- Archer, Natasha, MD, BCH, Hematology/Oncology

- Ballenger, Johnye MD, BCH, General Pediatrics
- Becerra, Lino, PhD, BCH, Anesthesiology
- Boynton-Jarrett, Renee MD, ScD, BMC, General Pediatrics
- Camargo, Fernando, PhD, BCH, Stem Cell Program
- Castro-Aragon, Ilse, MD, BMC, Pediatric Radiology
- Cherry, Marcus, PhD, BCH, Psychiatry/Psychology
- Churchwell, Kevin, MD, Executive Vice President of Health Affairs and COO, BCH
- Corzo, Deya MD, BCH, Genetics
- Daniel, Jessica Henderson PhD, ABPP, BCH, Psychiatry/Psychology
- Davis, Carmon J. MD, MPH, BCH, Primary Care
- Del Nido, Pedro J. MD, BCH, Chief, Cardiac Surgery
- Drubach, Laura A. MD, BCH, Radiology
- Epee-Bounya, Alexandra A. MD, BCH, Emergency Medicine
- Estrada, Carlos R. Jr MD, BCH, Surgery
- Figueira, Marisol MD, BMC, Infectious Diseases
- Flores, Alejandro F. MD, BCH, Gastroenterology
- Freundlich, Charise, MD, BMC, Emergency Medicine
- Fynn-Thompson, Francis MD, BCH, Cardiac Surgery
- Gonzalez-Heydrich, Joseph M. MD, BCH, Psychiatry/Psychology
- Gutierrez, Alejandro MD, BCH, Hematology/Oncology
- Gutierrez, Camilo MD, BMC, Pediatric Emergency Dept
- Gutierrez-Ruiz, Melisa MD, BMC Hematology
- Harper, Marvin B. MD, BCH, Infectious Diseases and Emergency Medicine
- Hatcher, Cyndie MD, BMC, Primary Care
- Holder-Niles, Faye, MD, MPH, BCH, Primary Care
- Ibeziako, Patricia, MD, BCH Psychiatry
- Ibla, Juan C. MD, BCH, Anesthesiology
- Isong, Inyang, MD, BCH, General Pediatrics
- Jarrett, Delma, MD, BCH, Radiology
- Joseph, Luc F. MD, BCH, Primary Care
- La Roche, Martin PhD, BCH, Psychiatry/Psychology
- LeClair, Elaine G. PhD, BCH, Psychiatry/Psychology
- Lee, Michelle A, MD, PhD, BCH, Hematology/Oncology
- Lopez, Mary Frances, PhD, BCH, Endocrinology
- Louis, Emault MD, BMC, Pediatric Primary Care
- Martin, Camilia R. MD, BCH/Beth Israel Deaconess, Newborn Medicine
- Martinez, Enid MD, BCH, Anesthesiology
- McAlmon, Karen R. MD, Winchester Hospital, Newborn Med
- McKay, Jheanelle, MD, BCH, General Pediatrics
- Morera, Claudio MD, BMC, Gastroenterology
- Mustafa-Kutana, Suleiman MD, BMC, Endocrinology
- Navedo-Rivera, Andres T. MD, BCH, Anesthesiology
- Nethersole, Shari MD, BCH, General Pediatrics, Community Health
- Nurko, Samuel MD, BCH, Pediatric Gastroenterology
- Ordonez, Claudia L. MD, BCH, Respiratory Diseases
- Perez-Rossello, Jeanette M. MD, BCH, Radiology
- Pierre-Joseph, Natalie MD, BMC, Adolescent Medicine
- Poe, Dennis S. MD, BCH, Otolaryngology
- Poussaint, Tina Y. MD, BCH, Neuro-Radiology
- Prudent, Nicole MD, BMC, Primary Care
- Pursley, DeWayne M. MD, BCH/Beth Israel Deaconess Med. Ctr., Newborn Medicine

## BOSTON COMBINED RESIDENCY PROGRAM

- Ramirez-Schrempp, Daniela MD, BMC, East Boston Neighborhood Health Center
- Redd, Sharon L. MD, BCH, Anesthesiology
- Rey-Casserly, Celiane M. MD, BCH, Psychiatry/Psychology
- Sanchez, Ana MD, BMC Developmental Pediatrics
- Soto, Carmen, MD, BCH, Endocrinology
- Smith, Vincent C. MD, MPH, BCH, Neonatology, Health Services Research
- Soros, Arlette, MD, BMC, Endocrinology
- Velarde, Jorge, MD, PhD, BCH, Infectious Diseases
- Ward, Valerie L. MD, BCH, Radiology
- Watnick, Paula, MD, PhD, BCH, Infectious Diseases
- Wilson, Celeste R. MD, BCH, General Pediatrics, Child Protection Program
- Wong Quiles, Chris MD, BCH, Hematology/Oncology

### Contacts

For more information about the BCRP Minority Physician Training Program or any of our programs, please contact:

#### Celeste Wilson, MD

Associate Director of Internship Selection  
Director, Child Protection Program  
Assistant Professor of Pediatrics, Division of General Pediatrics, Boston Children's Hospital,  
300 Longwood Ave., Boston, MA 02115  
Phone: (617) 355-6369  
E-mail: celeste.wilson@childrens.harvard.edu

#### Camila Mateo, MD

Attending Physician,  
Division of General Pediatrics  
Martha Eliot Health Center and Boston Children's Hospital  
Research Fellow, Harvard-wide Pediatric Health Services Research Fellowship  
MPH Candidate, Harvard T.H. Chan School of Public Health  
Diversity Officer, Boston Combined Residency Program  
Phone: (561) 350-9587  
Email: camila.mateo@childrens.harvard.edu

## Salaries and Benefits

Residency appointments are for one-year but house officers are accepted with the expectation that they will complete the full course of training needed for board certification. Depending on track, residents receive their salary and benefits from Children's Hospital or Boston Medical Center. Salaries and benefits are not identical, but the program directors continually review the benefits packages work to adjust salaries when needed to ensure benefits are as comparable as possible.



***Interns with first paycheck***

The Categorical and UHAT tracks have different pay scales because they are generated from the institutional pay scales at Boston Children's Hospital and Boston Medical Center. For the last 6 years, the pay scale at Boston Medical Center has been lower than that at Boston Children's Hospital, however each year the hospital leadership has been able to pay this difference to UHAT residents. Although we are not able to predict how salaries will differ between the two institutions in the future, we will make every effort possible to reconcile the salary differences between the two tracks each year.

### Salaries

	<b>Categorical</b> (2018-2019)	<b>Urban Health</b> (2018-2019)
PL-1	\$65,916	\$61,367
PL-2	\$68,507	\$63,688
PL-3	\$71,483	\$66,682
PL-4*	\$75,089	\$69,822
PL-5*	\$80,221	---
Chief Resident	\$86,415	---

\* Applies to combined programs

### Benefits (Both tracks unless noted)

#### Insurance

- Professional liability (malpractice) insurance
- Life insurance
- Long-term disability insurance
- Short-term disability insurance
- Business travel accident insurance
- Subsidized health insurance, including spouse and children
- Subsidized dental insurance



## BOSTON COMBINED RESIDENCY PROGRAM

- HIV supplemental benefit plan

### Other Employment Benefits

- Vacation (4 weeks)
- Leave of absence: medical, family medical or child care/adoption, maternity and paternity, bereavement.
- Child Care Center (Categorical track, subsidized, waiting list)
- Discounted parking in hospital lots with shuttle bus service
- Discounted night and weekend parking in patient parking garage
- Discounted public transportation (MBTA) pass
- Voluntary tax-deferred annuity and investment (403b) plan
- Lease Guarantee Program (both hospitals will guarantee payment of security deposit and/or advance payment of last month's rent if required by landlord.
- Taxi Voucher Program
- Travel reimbursement for outside continuity clinics

### Residency Benefits

- Daily lunches
- On-call accommodations, including an on-call meal
- Two hospital (BCH & BMC) and medical school (Harvard & BU) appointments
- Department pays for USMLE III
- Department pays 50% of Pediatric Board Certifying Exam fee
- Department pays American Academy of Pediatrics dues
- Professional Education Allowance (Urban Health and Advocacy track): \$1000 per year
- Free BLS training for all housestaff
- Free PALS, NRP training courses during orientation and free refresher courses during senior orientation
- Salary payment during intern orientation
- Five-day break between PL-1 and PL-2 years
- Flex spending account for child and dependent care and out of pocket medical expenses
- Office of Clinician Support for work-related or personal problems
- Reimbursement of \$500 to attend a medical meeting once during residency as well as an additional \$500 if presenting
- Office of Fellowship Training that supports residents and fellows

### Social Benefits

- Full day fall and spring retreat for all residents
- Intern overnight retreat in September

- Full day junior and senior orientations
- Faculty dinners
- Winter Formal (dinner-dance)
- House staff show
- House staff auction
- Use of Harvard University and Harvard Medical School athletic facilities

### Funding Sources for Academic Pursuits

- Schliesman 3rd World Awards (3-4/yr) (Up to \$1000/Award)
- Von L Meyer Travel Awards (12-13/yr) (\$700/Award)
- Lovejoy Research Awards (5-8/yr) (\$2,000-\$6,000/Award)
- Alpert Children of the City Endowment Grants (2-3/yr) (\$5,000-\$7,000/Award)

### Child Care Center

The Children's Hospital Child Care Center provides high quality childcare for children of hospital employees and staff, including Categorical residents. They accept



children three months through five years without regard to race, creed, cultural heritage or religion. They offer a safe, supportive environment that fosters self-esteem, growth and cultural diversity.

The Center is located at 21 Autumn Street, just a short walk from Children's Hospital. It is open year round on weekdays from 6:30 AM to 6:00 PM. The Center is closed on weekends and hospital recognized holidays. The center can accommodate 42 children, but there is nearly always a waiting list. Reduced tuition rates are available based on gross family income.

For more information about the program, or for a tour, please call the Center at (617) 355-6006.

### Office of Fellowship Training

Children's Hospital maintains an Office of Fellowship Training that serves both clinical and research fellows and offers a multitude of services. Examples include: conferences and seminars on topics related to career, family, leadership, mentoring and funding; clinical and basic science discussion groups; and journal clubs, social events, group dinners, and a research day poster session. They also have programs devoted to getting settled in the Boston area that address topics such as: housing, finances (Boston on a Budget), transportation, childcare, family, family activities, sports and fitness,

## BOSTON COMBINED RESIDENCY PROGRAM

and arts and entertainment. And, there are important sections on credentialing, moonlighting, and preparing a Harvard formatted CV on their website. There is also a fellow-to-fellow forum, including a list of housing opportunities. There is an excellent "[Welcome to BCH and Boston](#)" section on their website that lists many useful resources.

### Cost of Living

Boston is relatively expensive, though less so than many people imagine. The tables below compare: 1) the cost of living in different US cities in 2016 based on an income of \$65,000, which is approximately the salary of a junior resident in the BCRP, and 2) the average monthly rental for a two bedroom apartment. Comparatively, Boston is similar to Oakland, Seattle, New Haven, Los Angeles, and Baltimore, less than New York, Washington, Palo Alto, and San Francisco, and more than Philadelphia, Denver and Cincinnati. BCRP salaries, which are higher than average, and the

extensive benefit package make the relative costs even lower. In addition, Boston Children's Hospital is only 4 blocks from the elegant suburb of Brookline, with one of the best school systems in the Boston area, and the hospital is very near two subway lines that serve the downtown and suburban neighborhoods. So residents can live in high quality communities without the expense of a car (or extra car) to get to work. In our experience, the cost of living is only restrictive for couples with multiple children and one salary, particularly if there are extra expenses for schooling or child care or loan repayments. We are happy to connect applicants who wish to explore cost of living with current or recent past residents in similar situations. Though Massachusetts has a reputation as a high tax state, tax-wise it is [near the average of all states](#). Moreover, Massachusetts is rated as one of the [BEST STATES](#) in terms of the many factors that matter to most people.

**TOTAL LIVING COSTS**

City	Comparative Living Costs 2016*	Percent Difference	Pediatric Residency
New York, NY	\$81,849	126	Columbia, Cornell, Mt Sinai
San Francisco, CA	\$73,342	113	UCSF
Washington, DC	\$71,123	109	Children's National
Palo Alto, CA	\$68,702	106	Stanford
Oakland, CA	\$65,029	100	Oakland Children's
<b>Brookline, MA</b>	<b>\$65,000</b>	<b>100</b>	<b>BCRP</b>
Rochester, NY	\$52,597	98	Rochester
Los Angeles, CA	\$62,652	96	USC, UCLA
Seattle, WA	\$61,609	95	Univ Washington
New Haven, CT	\$60,450	93	Yale
Providence, RI	\$58,304	90	Brown
Baltimore, MD	\$57,713	89	Johns Hopkins
Burlington, VT	\$56,988	88	Vermont
Philadelphia, PA	\$56,492	87	CHOP
Chicago, IL	\$56,022	86	Northwestern, Chicago
Portland, OR	\$55,968	86	Oregon
Ann Arbor, MI	\$54,698	84	Michigan
Minneapolis, MN	\$54,349	84	Minnesota
Denver, CO	\$53,300	82	Colorado
Cleveland Heights, OH	\$53,550	82	Case-Western
Coral Gables, FL	\$53,621	82	Miami
Atlanta, GA	\$51,986	80	Emory
San Diego, CA	\$63,641	81	UCSD
Charlottesville, VA	\$52,442	81	Virginia
Chapel Hill, NC	\$51,263	79	North Carolina
Pittsburgh, PA	\$51,301	79	Pittsburgh
Houston, TX	\$50,919	78	Baylor
Dallas, TX	\$50,152	77	Texas Southwestern
Milwaukee, WI	\$50,060	77	Med College Wisconsin
Durham, NC	\$49,159	76	Duke
Cincinnati, OH	\$47,931	74	Cincinnati
St Louis, MO	\$47,638	73	Washington Univ
Salt Lake City, UT	\$47,442	73	Utah

\*Data are average of cost of living figures from CityRating.com and CNNMoney.com



## APARTMENT RENTAL COSTS

City	Median 2-Bedroom Apartment Rent per Month in 2016*	Percent Difference
San Francisco, CA	\$4,741	198
Palo Alto, CA	\$4,095	171
Berkeley, CA	\$3,200	133
Washington, DC	\$2,975	124
Los Angeles, CA	\$2,700	113
Miami, FL	\$2,699	112
New York, NY	\$2,600	108
Seattle, WA	\$2,421	101
<b>Boston, MA</b>	<b>\$2,400</b>	<b>100</b>
San Diego, CA	\$2,235	93
Portland, OR	\$1,925	80
Denver, CO	\$1,857	77
Chicago, IL	\$1,800	75
Minneapolis, MN	\$1,725	72
Atlanta, GA	\$1,719	72
Houston, TX	\$1,658	69
Dallas, TX	\$1,657	69
Philadelphia, PA	\$1,450	60
Baltimore, MD	\$1,443	60
Nashville, TN	\$1,400	58
Ann Arbor, MI	\$1,395	58
Pittsburgh, PA	\$1,350	56
Providence, RI	\$1,300	54
New Haven, CT	\$1,300	54
Raleigh, NC	\$1,242	52
Madison, WI	\$1,225	51
Salt Lake City, UT	\$1,169	49
Chapel Hill, NC	\$1,117	47
Charlottesville, VA	\$1,099	46
St Louis, MO	\$1,000	42
Milwaukee, WI	\$945	39
Columbus, OH	\$929	39
Cincinnati, OH	\$905	38
Rochester, NY	\$888	37
Shaker Heights, OH	\$850	35
Birmingham, AL	\$700	29

\*Data from Zillow.com

# After Hours

## With Colleagues



*The Winter Formal*

### Winter Formal

Each winter, the House Staff Association organizes a formal dinner and dance for residents, significant others, and invited faculty, either at the Harvard Club of Boston or the Trustee's Ballroom at Boston University. All residents are covered from hospital responsibilities during this event.

### Housestaff Auction

The House Staff Association organizes an auction every Spring in which residents, faculty and community businesses donate anything from cooking lessons, to a weekend at a summer home, Red Sox and Patriots tickets, or a new Vespa. All proceeds go to the House Staff Association to support residency-wide events throughout the year.

### The Spring Show

The BCRP houseofficers produce an annual show: a comedy "spoof" of the faculty and the vagaries of residency. The show is a long tradition and provides an opportunity for housestaff to showcase their remarkable singing, dancing, instrumental, organizational and comedic talents.



*Practicing for The Show*

### Theme Dinners and Beef Fest

Residency leaders host theme dinners that show off the diversity of backgrounds, geographic origins, and cultures of our residents. Some of the most recent events have included Turkish Night, Caribbean Night, Midwestern Night, and Middle Eastern Night. In addition, every year the male residents gather for a beef-eating and mustache-growing competition. Vegetarian participants are also welcome!



*Africa Night theme dinner*

### Diversity Dinners

Faculty and residents interested in supporting underrepresented minorities in medicine from all backgrounds working at both institutions host and meet at monthly Diversity Dinners at faculty homes or favorite Boston restaurants. These dinners offer opportunities for improved networking, community-building, and socializing.

### Chief Family Dinners and Events

Each Chief organizes a quarterly (or more often) dinner or social event for the 25-30 residents in their Chief Family. These dinners and events are excellent opportunities to relax, unwind and enjoy each other's company in a more intimate setting with residents from each class represented. Recent gatherings have included BBQs, cookie-decorating parties, and game nights.

### Tox Rounds

The House Staff Association sponsors frequent evening get-togethers at restaurants and bars around Boston. In the past year, the House Staff Association has hosted a Match Day celebration along with many additional Happy Hours

## BOSTON COMBINED RESIDENCY PROGRAM

### Resident Get-Togethers



***Residents enjoying a Sox game***

The residents arrange many other events together including Halloween parties, engagement parties, karaoke nights, ice cream parties, apple picking weekends, bowling parties, Red Sox games, dessert parties, and more. In recent years the residents have averaged one or more social events each week!

### Sports

Many BCRP residents participate in organized sports. In the past, residents have organized BCRP softball, basketball, and soccer teams in leagues throughout Boston, and some have won titles! One example is the Malpractice Dodgers, pictured to the right, a team of BCRP residents, alumni, and significant others that play in the Boston Children's Hospital league in Hyde Park. Other residents take advantage of hiking and biking trails in



***Malpractice Dodgers***

Boston and the region or have memberships in local gyms such as the YMCA, Crossfit or Boston Sports Club. Harvard University and Harvard Medical School athletic facilities are available to residents for a small fee, and residents enjoy benefits of discounted memberships at many gym facilities across the city. Harvard Medical School has a gymnasium, squash courts, extensive exercise equipment and an outdoor tennis court.



## Having Fun Together



*Winter Formal*



*Winter Formal Dinner*



*BCRP Engagement Party*



*Italian Night*



*Oktoberfest*



*Chicago Night*



*India Night*



*Chinese Night*





## Having Fun Together



*Halloween Party*



*Apple Picking Weekend*

*Ice Skating Party*

*Ice Cream Party*

*Thanksgiving*



*Dessert Contest*



## Having Fun Together



*Housestaff Show*



*Residents Waiting on Karaoke Night*



*Housestaff-Faculty Chorale Caroling*



*Intern Trip to Puerto Rico*



*Beef Fest and Mustache Contest*



*Bowling*



*Two of Many Tox Rounds*





## Having Fun Together



**BBQ**



**Rooftop shrimp boil**



**Biking to the beach**



**Hiking**



**Sports**



**Running the Boston Marathon**



**Ugly Christmas sweater party**



**St. Paddy's day**



**Talk like a pirate day in the hospital**



**Chiefs at Red Sox game**



**Taylor Swift concert**



**BCRP on the slopes**

## BOSTON COMBINED RESIDENCY PROGRAM

### Boston

Boston is a medical center like no other, with three major medical schools and about 27 hospitals. Immensely diverse and vibrant, Boston is a city of some twenty neighborhoods with Cambridge and Brookline as bordering communities. Persons of color comprise over 40% of the city's population and over one-third of all students enrolled in Boston Public Schools speak a language other than English at home.

### Transportation

Boston is blessed with excellent public transportation. The MBTA subway system (or just "the T") extends throughout Boston, most of Brookline and Cambridge, parts of Newton, and to near north and south shore suburbs. More distant towns are served by commuter rail. The Longwood Medical area is centered within 2-3 blocks of two different Green line routes. There is also an extensive bus system, including a shuttle bus from Harvard University to the Medical School. Parking is expensive in the Longwood area, but residents who drive can park in cheaper outlying lots and use Children's shuttle buses. Residents can park in the patient lot across from Children's for free at nights (6 pm to 10 am) and on weekends. Residents who leave the hospital late at night can also obtain free taxi vouchers. Residents who enroll in the Hospital's T-Pass Program receive a 40% discount on monthly MBTA passes. For those who park in more distant lots, the hospital provides a free shuttle service. There is also a free shuttle (M2 Shuttle) from the



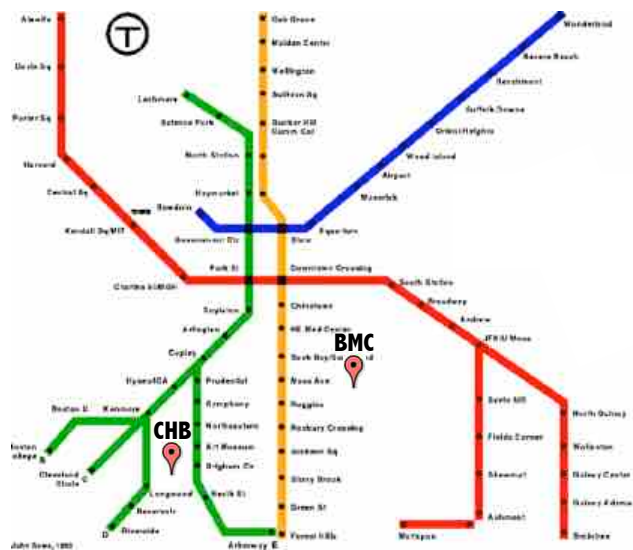
Longwood Medical Area to Harvard Square in Cambridge. Residents who do not have their own cars can obtain Zipcars for occasional use. In addition, Children's Hospital provides a free bike cage in the Patient/Family Garage for employees who cycle to work.

### History

Boston was founded in 1630 and is central to American history. History buffs can trek the Freedom Trail, which connects many historically important sites, from the Old State House, where the Declaration of Independence was first read, to Paul Revere's House to the USS Constitution ("Old Ironsides"). Sites of pivotal battles at Bunker Hill, and in Lexington and Concord, are also national monuments and nearly every town has a historical society. Old Sturbridge Village is an authentic recreation of a colonial village, with historic housing and costumed inhabitants that is located in Sturbridge, an hour west of Boston. Plimoth Plantation is a similar recreation of the original Plymouth Colony just south of Boston. And touristy Salem, home of the infamous witch trials, lies to the north.



**The Old North Bridge in Concord.  
Site of the 'shot heard 'round the world'**



**Schematic MBTA map showing the Green, Blue, Red and Orange Lines and the relative positions of Children's Hospital and Boston Medical Center**



## BOSTON COMBINED RESIDENCY PROGRAM



*The outstanding Longwood Symphony is composed predominantly of doctors from the hospital area*

### Arts and Culture

Boston is a cultural Mecca. The Boston Symphony and Boston Pops are world-renowned, but there are several other professional symphonies and innumerable civic and college orchestras. In fact, the medical area has its own orchestra, the Longwood Symphony, composed mostly of physicians, that is very high quality. There are also over 150 amateur choral groups, including many outstanding ones: the Cantata Singers, the Boston Cecilia and the Handel and Hayden Society to name just three. The Museum of Fine Arts and the Isabella Stuart Gardner Museum are world-class fine art museums and are only a 3-block walk from Children's Hospital. The Institute of Contemporary Art and the Fogg Art Museum at Harvard are two others of note. The Museum of Science and the Harvard Museum of Natural History and the John F. Kennedy Library and Museum are also outstanding. The Boston Lyric Opera highlights a growing opera scene, and the Boston Ballet is one of the country's best. There are numerous theater companies including the Harvard-affiliated American Repertory Theater (ART), the Huntington Theater Company and the Lyric Stage of Boston. Plus, Boston is an increasingly frequent venue for pre-Broadway tryouts and touring national companies — at the ART and in the gilded grandeur of the splendid Colonial Theater, the grand dame of Boston theater venues.

### Sports

Boston is a great sports town. The Red Sox, Celtics, Bruins and Patriots have often been outstanding in recent years. The Revolution (soccer) are usually competitive. Fenway Park is only a 10-minute walk from the hospital (~5 blocks) and the BankNorth Garden, where the Celtics and Bruins play, is a short subway ride. The Patriots and



*Fenway Park is only 5-blocks from Children's Hospital*

Revolution play in Foxboro, MA, which is about 20 miles south of the city.

For those who prefer participatory sports, the Harvard University Athletic Facilities and Harvard Medical School Athletic Facilities are available for a small fee. Harvard University offers facilities for indoor and outdoor tennis, swimming and diving, ice skating, jogging, squash, basketball, baseball, field hockey, lacrosse, rugby,



*Bob Vinci and BCRP residents with the Stanley Cup*



*Some residents (and resident supporters) participate in the marathon*



## BOSTON COMBINED RESIDENCY PROGRAM



***Shaker Hills public golf course***

volleyball, rowing, and sailing, plus others, and extensive exercise and weight training. The Medical School has a gymnasium, squash courts, cardiovascular and strength training equipment and an outdoor tennis court. Groups like the Boston Ski and Sports Club organize year round sports leagues, as well as sporting trips.

Boston is a great running and biking city. There are numerous Bikeways, particularly along the Charles River and through the 'Emerald Necklace' string of parks, which lies just 3 blocks from the Longwood area. The same routes are popular for running. For serious runners, the famous Boston Marathon occurs each spring on Patriots Day, which is a local holiday, allowing those who wish to run, to participate. Many housestaff and faculty do.

Golfers have many opportunities in the Boston area. There are 102 18-hole public courses within an hour of Boston including many award winning courses, such as Pinehills in Plymouth, Red Tail in Devens, Shaker Hills in the town of Harvard, Shining Rock in Northbridge, Butter Brook in Westford, Stow Acres in Stow, and George Wright in Hyde Park, the latter a Boston Municipal course designed by Donald Ross.

### **Housing and Schools**

Housing is relatively expensive in Boston, roughly equivalent to Seattle, though less than New York City, Washington, DC, or the major cities in California. To compensate, the BCRP offers higher than average salaries. In addition, Children's Hospital offers a Lease Guarantee program. If a landlord requires advance payment of the last month's rent and/or a security

deposit, Children's Hospital will guarantee payment to the landlord. Real estate information is available from a number of sources including the Boston Globe, which also publishes a useful rental search engine. Other good sources for rental housing are Rental Beast, Craig's List, [Zillow](#), the [Harvard Off-Campus Rentals](#) website, the Harvard Housing Office, and the information on Housing and other topics on the website of the BCH Office of Fellowship Training. For those interested in purchasing property, the Harvard Faculty Real Estate Office provides useful services.

Boston and Cambridge schools are variable but the schools in Brookline, Newton and many other suburban communities are outstanding. The Greatschools website contains considerable information about individual schools. [Data on test scores](#) for children in Massachusetts schools is also available.

### **Kids**

Boston is a great city for kids because there are so many things to see and do in the city and nearby, and because the transportation system is safe and extensive. The Children's Museum and the Museum of Science are each among the best in the country. The inexpensive Community Boating Program (\$1 to \$300 per year for kids depending on family income) is also outstanding and is an incredible bargain for many. It offers sailing, windsurfing and kayaking on the Charles (lessons included). A good list of activities for kids can be found at Fairly Odd Mother, Family Days Out, Family Friendly Boston, Mommynearest, and at Boston Central. The latter site also contains lots of useful information about Boston suburban communities.

Children's Hospital has its own Child Care Center and there is a Bright Horizons Family Center at the nearby Landmark Center that is available to employees of Harvard Medical School and the Longwood Area



***Construction Zone at the fabulous Boston Children's Museum***

## BOSTON COMBINED RESIDENCY PROGRAM

hospitals. Kathleen Greer Associates (KGA, Inc) is Children's Employee Assistance and Information Program. They will help residents find childcare services. The Longwood Medical and Academic area (LMA) Family Childcare Network (FCCN) also matches LMA employees with family child care providers.

For those interested in nannies, the Brigham and Women's Hospital's Office for Women's Careers, hosts a Nanny Network list-serve, which offers a forum for faculty and residents to share nanny requests, as well as information on nannies who may be leaving your family once you've 'outgrown them'. To join the list-serve send an email to [owc@partners.org](mailto:owc@partners.org) with "I want to join the Nanny Network" in the subject line. Care.com also offers listings of nannies.

Cultural Care Au Pair (CCAP) is the largest Au Pair company in the world and offers affordable child care option for benefits-eligible Boston Children's employees ([info.culturalcare.com/childrens](http://info.culturalcare.com/childrens)).

For grown-up kids, the Boston Event Guide is a collection of local events for those nights off. The Mass Vacations website contains scads of useful information about the region and things to do.

### Restaurants and Night Life

Boston is a world-renowned center for ideas and learning. Some 65 colleges, universities and other institutions of higher education attract more than 200,000 students. No other major city has such a high proportion of students. Their energy invigorates the city's restaurant and nightlife, from club hopping on Lansdowne Street to the live music scene in the cafes and coffeehouses. Live music includes Latin, jazz, blues, gospel, folk and classical. Boston is a great restaurant town. There are many outstanding restaurants and enormous variety. The restaurant reviews in the Boston Globe and Zagats are particularly useful.

### Waterfront

Downtown Boston is a peninsula, surrounded by water on three sides: the harbor on the east and north, and the Charles River on the west. Unlike many cities, much of the waterfront is recreational space. The harbor offers boating of all kinds, fishing, and a number of community beaches. There is a Harborwalk with many parks and other venues. The Harbor Islands are part of the National Park system and are accessible by ferry for day trips and picnicking. The Charles River side is even more scenic, with a 17-mile Esplanade along the shore, the Hatch Shell for summer concerts, the famous Duck Boat Tours and a Community Boating Program that allows individuals or families to sail any of a fleet of 113 boats (or kayaks or wind surfers) in the Charles River Basin and that provides children with instruction and all-summer boating. Every July 4th, the



***Boston side of the Charles River esplanade***



***July 4th fireworks over the Charles***



***Community Boating on the Charles River***



## BOSTON COMBINED RESIDENCY PROGRAM



***Georgian homes in Beacon Hill neighborhood***

Esplanade is packed with crowds for a spectacular Boston Pops concert and fireworks show. The Charles River is also known for its rowing and sculling. The famous Head of the Charles regatta, the world's largest 2-day rowing event, is held every year in October.

### **Boston Neighborhoods and Nearby Communities**

Boston is a city of neighborhoods. Beacon Hill dates from the 18th century and features cobblestone streets, gaslights and brick front Georgian townhouses. Back Bay was built a century later by the Boston elite and contains gorgeous Victorian townhouses with wide streets and small front gardens. It also includes the fanciest shopping area in Boston, along lower Newbury and Boylston streets plus the Prudential Center and Copley Place shopping centers. The old North End, which dates from Colonial times, still retains much of its strong Italian heritage. The South End is a vibrant newly restored, cosmopolitan district and includes the Theater District and many of the best restaurants. Bay Village is a charming historic part of the South End. The Harbor area is also newly renovated. Many wharves have been recycled as high-end condominiums. Chinatown is Boston's center for the Asian community. The Fenway area, which is closest to the hospitals and includes Fenway Ball Park, has a particularly high concentration of student housing, cultural organizations and parkland.

Charlestown, Brighton, Allston, South Boston, East Boston, Roxbury, Dorchester, Mattapan, Jamaica Plain, West Roxbury, Hyde Park and Roslindale are other Boston neighborhoods. Some housestaff have recently purchased homes in parts of Jamaica Plain, West Roxbury and



***Harvard Square, at the heart of the University, is an area of shops and retail stores, ethnic restaurants and cafés***

Dedham, which are reasonably close to the Longwood Medical Area.

Brookline is a very high quality suburb that begins just 3 blocks west of the Longwood Medical Area. It has superb schools and shops and multiple subway lines. Although homes in Brookline are extraordinarily expensive, condominiums and apartments are more reasonably priced, and many interns and residents live there.

Cambridge lies just across the Charles River from Boston and is home to Harvard University and MIT. Many housestaff enjoy the intellectual ferment of Cambridge and live in the residential areas near Harvard Square. There is a regular shuttle bus from Harvard Square to Harvard Medical School and good subway connections.

For those interested in identifying the most prestigious communities, a list of towns with the [most millionaires](#) is available.

Similarly, there is a useful [map](#) defining the level of education of those who live in various communities throughout metropolitan Boston.

The website [Jumpshell](#) has useful information about Boston area neighborhoods and median rental prices.

### **Suburban Communities**

Greater Boston is actually a conglomerate of over 100 small to medium-sized towns and villages, most of which were incorporated in the 17th and 18th centuries. As such it differs greatly from the more homogeneous towns in many other parts of the country, because each of the Greater Boston communities has its own character, government and school system. The range of variation is quite remarkable. Marblehead is centered on sailing, Lincoln and Hamilton on horseback riding, Lexington and Concord on colonial history, and so on.





***Horseneck beach***



***Cisco Beach on Nantucket Island***

## Within Massachusetts

### Beaches

The Massachusetts shoreline is dotted with beaches, some, like Revere Beach, even serviced by the MBTA. Beaches on the outer arm of the Cape and north of the Cape tend to have colder water than beaches on the south coast of the Cape, on Martha's Vineyard and Nantucket, and lining Long Island Sound, which are brushed by fringes of the Gulf Stream. It's difficult to choose the Perfect Beach because tastes and uses vary, but we recommend Horseneck Beach in Westport, MA, near the Massachusetts-Rhode Island border. This 2.5-mile beach features beautiful dunes, warm(ish) water and adequate parking.

### The Cape and Islands

Cape Cod is Boston's summer vacation spot. It offers a wide variety of attractions. From quaint, historic old towns like Sandwich, founded in 1638, or charming, gray-shingled Chatham, to the Cape Cod National Seashore, with its 40 miles of ocean beaches, dunes, salt marshes and pine barrens, to free-living, freethinking Provincetown at the tip of the Cape. There is a ferry to Provincetown from Boston.

Nantucket and Martha's Vineyard are reached by ferry from Woods Hole or Hyannis on the Cape. Nantucket Town is historic and charming, with cobblestone streets and 18th century homes. Outside the town one finds an otherworldly landscape of ponds, thickets, moors and heath. There are 80 miles of gorgeous beaches, great biking trails and the village of Sconset ('Sconset) with its privet hedges and rose-covered trellises. Martha's Vineyard is more varied and more Victorian, but also charming.

### Rockport and Cape Ann

Cape Ann, on the North Shore of Boston, extends from the classic fishing port of Gloucester around to the quaint English-like village of Annisquam. It includes Rockport, a charming artist's colony, and the bizarre Hammond Castle.

### Marblehead

Lying between Salem and Cape Ann, Marblehead was one of the earliest and richest settlements in America. This charming early Colonial era town with narrow streets has over 300 pre-Revolutionary War homes and overlooks a spectacular harbor filled with boats. Called the Yachting Capital of America, Marblehead was the birthplace of the American Navy and retains its sailing focus.



***Marblehead harbor***

### Berkshires and Tanglewood

The Berkshires refers to the area around Lenox and Stockbridge in the western portion of Massachusetts. It is

## BOSTON COMBINED RESIDENCY PROGRAM

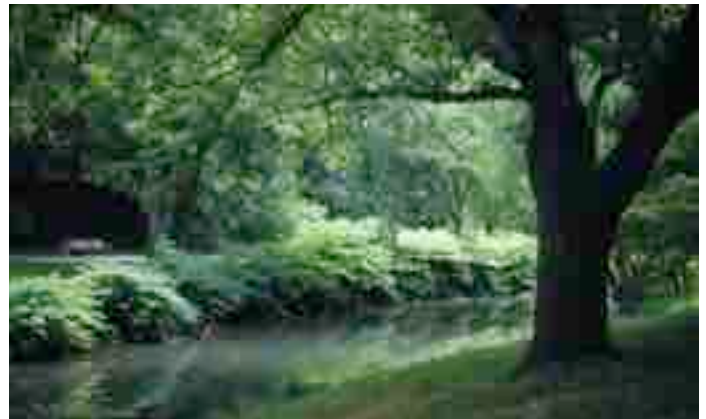
a region of green hills, quaint New England villages, the Norman Rockwell Museum, and Tanglewood, the summer home of the Boston Symphony Orchestra.

### Williamstown



**One of 36 Renoir's at the Clark Art Institute**

A beautiful New England town in the mountainous heart of the northern Berkshires, Williamstown is home to two extraordinary art museums—the Sterling and Francine Clark Art Institute and the Williams College Museum of Art—and the renowned Williamstown Theatre Festival, arguably America's premier summer theater. The exceptional collection of impressionist paintings alone makes the Clark worth a visit.



**The Fenway, part of the Emerald Necklace system of parks, lies just 3-blocks from Children's**

are a new kind of amusement that is great in the winter months. The [Sky Zone](#) has tons of trampolines and related attractions that will also keep kids entertained.

## New England Getaways

One of Boston's gifts is its proximity to great natural beauty. Right in the city is the famous ring of connected parks called the Emerald Necklace, which includes the Arnold Arboretum. A short drive will get you a relaxing weekend in the Berkshire Mountains of Western Massachusetts, or to hiking and biking in the White Mountains of New Hampshire. A free day from the hospital could mean escaping to scenic Vermont, or to miles of rugged coastline in Maine or to the beaches of Cape Cod. Take a ferry ride to the islands of Martha's Vineyard or Nantucket. And, New York City is only four-hour drive from Boston. The Go New England website is a good place to start looking.

### Newport

Newport is both a historic town with more 17th and 18th century homes than any other place in the country, and the fabled summering place of the fabulously wealthy during the Gilded Age at the end of the 19th century. The mansions, like the Vanderbilt's opulent 'The Breakers' or 'Rosecliff', of Great Gatsby fame, are worth the trip, as is the Ocean Drive along Newport's spectacular rocky shore.



**The Breakers**



**Mini-Dodgem cars at Canobie Lake Park**





*Bass Harbor light on the Maine coast*

### Mystic Seaport

Site of shipbuilding since the 17th century, tiny Mystic, CT contains Mystic Seaport, the country's premier maritime museum. There is also an aquarium and, nearby, two of the world's largest casinos: Foxwoods and Mohegan Sun.

### Maine Coast

Maine is famous for its pinewoods, rugged, rocky shore, and lobsters. Southern Maine is more accessible and also beautiful, but 'Downeast' Maine, north of Portland, is even more so, particularly the areas around Boothbay Harbor, Camden, Blue Hill and Bar Harbor. Bar Harbor is located on Mt Desert Island, which also houses Acadia National Park, one of the most popular national parks in the US. Acadia has the highest mountains on the ocean north of Rio de Janeiro and the only fiord in the Americas. The scenery is spectacular and is amplified by an extraordinary variety of outdoor activities (hiking, biking, rock climbing, canoeing, sea kayaking, sailing, deep sea fishing, whale watching), along with outstanding restaurants, art galleries and opportunities for antiquing.

### Lakes

There are many beautiful lakes in New England. Indeed many in northern Maine are wilderness lakes, only accessible by floatplane or logging road. Nearer Boston, Lake Winnepesaukee in mid-New Hampshire is a recreational paradise, especially along its western shore. The Squam Lakes, just south of the White Mountains, depicted in the movie "On Golden Pond", are more peaceful. Sebago Lake in southern Maine is also a popular resort area.



*Lake Winnepesaukee at sunset*

## Outdoors Activities

### Hiking

The hiking in New England is some of the best anywhere. The Appalachian Trail extends through Massachusetts, Vermont and New Hampshire, terminating at Mt Katahdin in Maine. The White

Mountains in New Hampshire are among the very best with 48 peaks above 4000 ft and many dozens of hikes. Some of these are described at Hike the Whites. The Appalachian Mountain Club and Trails.com are also excellent resources. Acadia National Park is another extraordinary place for hiking. The 120 miles of hiking trails were mostly built in the early 20th century and vary from gentle woodland and

oceanside walks to exhilarating cliff climbs along ledges assisted by iron ladders and steps cut into the rocks. Mt Monadnock is another excellent spot for hiking. The solitary mountain is located just over the Massachusetts-New Hampshire border, about an hour from Boston, and has excellent views. The surrounding region is charming and contains numerous prototypical New England villages. For kids, the 70 ft high, quarter mile long Purgatory Chasm in Sutton, MA, offers rock caves and many fun climbing challenges.



*Beehive Trail in Acadia National Park*





*Pond along the Cape Cod Rail Biking Trail*

### Biking

Biking is also excellent in New England, both mountain biking and trail riding, including numerous rides in the Boston area. Acadia National Park has 50 miles of beautiful, fine gravel carriage roads, which wind among the lakes and mountains, with fabulous views and some exciting ups and downs. They were built at great expense by John D. Rockefeller, Jr. between 1913 and 1940, and are now used for biking and horseback riding (no motor vehicles allowed). The trails are listed in the Top 10 biking trails in the US. On Cape Cod, the 22-mile Cape Cod Rail Trail is newly refurbished. It extends from Dennis to Wellfleet along ponds, salt marsh and cranberry bogs. In Rhode Island, the 14.5-mile, paved East Bay Bike Path hugs the coast from Providence to Bristol, passing a wildlife refuge, salt- and freshwater marshes and an open panorama of Narragansett Bay. For mountain bikers, Sunday River Ski Resort in Maine offers weekend lift service to 25 trails covering over 20 miles of terrain.

### Ziplines

There are numerous opportunities for zip lining in New England. For adrenaline junkies, some lines are more than a half mile long and 200 ft in the air. Others involve tours combining multiple zip lines, sky bridges, rappels and other challenges.



*No fear*



*Canoeing under the Old North Bridge on the Concord River*

### Canoeing and Kayaking

In the Boston area there is very enjoyable canoeing on the Charles River and on the Concord-Sudbury-Assabet Rivers. The latter offers an opportunity to paddle under the historic Old North Bridge and into the Great Meadows National Wildlife Refuge beyond. For those who desire more adventurous canoeing or kayaking, the New England Division of the American Canoeing Association offers cruises and instruction and times of recreational water releases from dams. The enormous numbers of lakes in the northern Maine Wilderness offer exceptional opportunities for extended fishing, camping and canoeing trips. One of the most famous is the trip down the Allagash Wilderness Waterway. For something more casual on a summer day, Farmington River Tubing in New Hampshire provides a cooling 2.5-mile tube ride down the Farmington River and a bus ride back to the launch point.

### Whitewater Rafting

There are a wide variety of whitewater rafting trips available in Western Massachusetts and elsewhere in New



*Whitewater rafting on the Deerfield River*

## BOSTON COMBINED RESIDENCY PROGRAM



***Jackson Ski Touring***

England, varying from Class II-III rapids up to Class IV on parts of the Kennebec and Dead Rivers in Maine.

### **Skiing and Snowboarding**

New England has 59 downhill ski areas, from small family run operations to giant destination resorts. The snow conditions are less predictably excellent than in the West, but the resorts are more accessible to those wanting day trips. The Blue Hills is a small area just south of the city and offers night skiing. Larger areas within 1.5-2 hrs distance include Waterville Valley, Sunapee and Loon in New Hampshire. The largest and most popular areas, like Killington, Stratton, Sugarbush and Stowe in Vermont; Cannon and Wildcat in New Hampshire; and Sunday River in Maine are 2.5-3 hours driving distance. Sugarloaf, a terrific mountain in Maine, is even a bit further. Virtually all New England ski areas also cater to snow boarders.

For cross-country skiing, it's hard to beat the trail system in Jackson, NH, which is also about 2.5-3 hrs away. Imagine a whole New England Village dedicated to Nordic skiing, with a white-steepled church, covered bridges, rivers with cascading waterfalls, sundry eateries, charming country inns and 100 miles of cross country ski trails. Its no wonder that the Jackson Ski Touring Foundation is listed #1 in the US. For cross-country skiing close to Boston, the Weston Ski Track is recommended.

### **Fishing and Whale Watching**

Boston is a worldwide destination fishery for striped bass, blue fin tuna, bluefish, flounder and cod. Salt-water



***Faculty member Tom Look with a striped bass caught in Boston Harbor on a fly rod***

fishing is especially popular, and colleagues with boats and experience are available within the program to introduce interested individuals to the sport. Boston Harbor has been completely cleaned up beginning in the 1980s with the installation of the massive Deer Island water treatment plant, and its waters are now pristine. Striped bass migrate north to Boston harbor in early May, and the 39 Boston Harbor Islands provide ideal structure and a very picturesque venue for striped bass fishing. In August and September, medium sized blue fin tuna (30 to 120 lbs) move into Cape Cod Bay near Boston, and feed actively on the surface, becoming prime targets for light tackle fly and spin fishing anglers. Tuna travel with whales, providing interesting whale watching opportunities on Stellwagen bank while searching for the elusive schools of tuna. Bluefish arrive around the same time as the tuna, and provide exciting surface action as they feed on schools of baitfish in Boston Harbor. Summer is the prime season for salt-water fishing in Boston, but for the dedicated fisherman or woman, large cod fish (up to 50 lbs.) can be successfully targeted with jigs year-around in waters just outside Boston Harbor. All fish species are safe to eat due to the successful harbor clean up. Fresh water fishing is also popular. Freshwater species include: large and small mouth bass, lake trout, perch, walleye, northern pike and land-locked salmon. Fly-fishing for trout in New England streams is also popular. And, for the hardy there is ice fishing in the winter.

# Fellowships

A variety of fellowship programs are offered at Children's Hospital and Boston Medical Center for qualified physicians who have completed their residency training and want to prepare for academic careers in pediatrics or allied fields. The fellowships and fellowship contacts are listed here for intern applicants who want to investigate fellowship opportunities as well as the BCRP residency. We are happy to help applicants who want to explore fellowships and are willing to devote part of an extra day to meeting with faculty or fellows in a particular field.

## Boston Children's Hospital

### **Adolescent Medicine**

S. Jean Emans, M.D.

### **Allergy/Immunology**

Hans C. Oettgen, M.D., Ph.D.

### **Cardiology**

David W. Brown, M.D.

### **Child Neurology Residency**

Mustafa Sahin, PhD, M.D., Dir Residency Selection

David K. Urion, M.D., Program Director

#### **Neurodevelopmental Disabilities**

David K. Urion, M.D.

#### **Clinical Neurophysiology/Epilepsy Fellowship**

Phillip Pearl, M.D.

### **Clinical Informatics**

Jonathan Hron, M.D.

### **Critical Care**

Meredith van der Velden, M.D.

### **Developmental Medicine**

#### **Developmental-Behavioral Pediatrics**

Lisa Albers Prock, M.D., M.P.H.

### **Emergency Medicine**

Joshua Nagler, M.D.

### **Endocrinology**

Diane Stafford, M.D.

### **Gastroenterology and Nutrition**

Paul A. Rufo, M.D.

#### **Advanced Hepatology and Transplant Fellowship**

Paul A. Rufo, M.D.

### **General Pediatrics**

#### **General Academic Pediatrics**

Joanne E. Cox, M.D.

#### **Pediatric Environmental Health**

Alan D. Woolf, M.D., M.P.H.

#### **Harvard Pediatric Health Services Research**

Jonathan Finkelstein, M.D.

### **Genetics**

Amy E. Roberts, M.D.

### **Global Health Services Delivery**

Kim A. Wilson, M.D.

### **Hematology/Oncology**

Scott A. Armstrong, M.D., Ph.D.

#### **Neuro-oncology Fellowship**

Susan Chi, M.D.

#### **Palliative Care Fellowship**

Joanne Wolfe, M.D.

#### **Stem Cell (Bone Marrow) Transplant**

Leslie Lehmann M.D.

### **Infectious Diseases**

Tanvi S. Sharma, M.D.

### **Medical Toxicology**

Michele M. Burns Ewald, M.D.

### **Nephrology**

Michael A. Ferguson, M.D.

### **Newborn Medicine**

John A. F. Zupancic, M.D., Sc.D.

### **Psychiatry**

Oscar Bukstein, M.D.

### **Respiratory Diseases**

Debra M. Boyer, M.D.

### **Rheumatology**

Hans C. Oettgen, M.D., Ph.D.

### **Sports Medicine**

Pierre A. d'Hemecourt, M.D.

## Boston Medical Center

### **Child Neurology Residency**

Rinat Jonas, M.D.

### **Developmental and Behavioral Pediatrics**

Naomi Steiner, M.D.

### **General Academic Pediatrics**

Megan Bair-Merritt, M.D., M.Sc.

### **Infectious Diseases**

Ellen R. Cooper, M.D. & Stephen I. Pelton, M.D.

### **Pediatric Emergency Medicine**

David Dorfman, M.D.



# Results

## What Our Residents Do Next

The BCRP specializes in training academic pediatricians. **Eighty-six percent** of the program's graduates during the past five years have continued on a pathway leading to an academic career. This is an *exceptionally high percentage*. The residents enter a wide variety of fields. Although some go to programs across the country, about 80% continue their training at Boston Children's Hospital.

## Careers of Our Residents

The "graduates" of the residency program during the past 40 years best illustrate the success of our approach to training and our ability to achieve our goal of training leaders in American pediatrics. To evaluate our success, one must consider the cohort who completed their residencies between 1968 and 1992. More recent residents are still finishing their training or are relatively early in their academic careers and have not reached their full potential.

## Leadership Positions

The 1968-1992 cohort contains 559 individuals of whom we have follow-up information on 87 percent (as of 2007). *Seventy-one percent of these are currently in academic medicine* or are recently retired from academic positions and *44 percent are leaders in academic medicine*. An additional 15 percent hold senior academic ranks. **Thus, 83 percent of the group in academic medicine have reached positions of prominence.** An additional 7% have had major success within the biotech or business community, as authors, or in other medical pursuits.

## Select Societies and Awards

As of 2007, a remarkable number of the 1968-1992 graduates of our residency program were members of institutions that guide American medicine and pediatrics and that select their members based on scientific accomplishment.

- National Academy of Sciences and/or National Academy of Medicine - 14 members (currently 20 active members from all years)
- American Society of Clinical Investigation - 36 members
- American Pediatric Society - 84 members
- Society for Pediatric Research - 112 members

## What Residents (N=611) Did in the Year Following Residency (2002-15)

	Number	%
<b>Academic Career</b>	<b>556</b>	<b>91</b>
Second residency or fellowship	460	83
Chief residency	67	12
Faculty	29	5

<b>Practice Career</b> (Private practice, neighborhood health centers & HMOs)	<b>55</b>	<b>9</b>
---	-----------	----------

## Residencies and Fellowships Chosen (2002-15)

	No	No
	.	.
Hematology/Oncology	69	Neurology 21
Cardiology	53	Pulmonary 9
Academic Pediatrics	50	Allergy/Immunology 9
Emergency Medicine	42	Global Health 9
Critical Care	38	Rheumatology 7
Neonatology	31	Adolescent Medicine 7
Infectious Diseases	27	Genetics 4
Gastroenterology	27	Nephrology 2
Endocrinology	22	Hospitalist and Other 63

## 1968-1992 Residents: Current Jobs

<b>• Academic</b>	<b>71%</b>
- Senior Administrator or Dean	4%
- Department Chair	6%
- Division Chief	18%
- Head of Major Clinical Program	9%
- Sr Researcher/Research Administrator	5%
- Educator	2%
- Senior Academician	15%
- Junior Academician	12%
<b>• Nonacademic</b>	<b>29%</b>
- Hospital-based private practice	3%
- Private practice	18%
- Authors	0.5%
- Business, Biotech or Biopharm	4%
- Other	3.5%

## BOSTON COMBINED RESIDENCY PROGRAM

### National Academies

Election to the National Academy of Sciences or the National Academy of Medicine is one of the highest honors a physician or physician-scientist can achieve. No pediatric program has had more residents selected for membership in these two academies than the BCRP.

#### Active members of the National Academy of Sciences or the National Academy of Medicine who are graduates of the residency program

Nancy C. Andrews	Stephen Joseph
Donald M. Berwick	Samuel Katz
Diana W. Bianchi	Isaac S. Kohane
Jan L. Breslow	Philip J. Landrigan
Michael Brown	Rudolph Leibel
Atul Butte	Louis J. Muglia
Patrick Conway	Stuart H. Orkin
Jonathan E. Fielding	Philip A. Pizzo
Jonathan D. Gitlin	Bonnie J. Ramsey
Todd R. Golub	Frederick Rivara
Alan E. Guttmacher	Mark C. Rogers
Robert Haggerty	Joshua Scharfstein
Jodi Heymann	Mark A. Schuster
Margaret K. Hostetter	Alan L. Schwartz
Anna Huttenlocher	Kathy Wilfert
Richard Johnston	

### E. Mead Johnson Award for Research in Pediatrics

The 1968-1996 graduates won 35% of the E. Mead Johnson awards (the most prestigious research award in pediatrics) that could have been won by their classes. Overall, Children's trainees and faculty have won 37% of the 154 awards given since the inception of the award in 1939.

#### Residents (1968-2000) who were awarded the E. Mead Johnson award for research in pediatrics (year awarded)

Erwin W. Gelfand (1981)	Nancy C. Andrews (2002)
Samuel E. Lux IV (1983)	David S. Pellman (2006)
John A. Phillips III (1984)	Marc E. Rothenberg (2007)
Jan L. Breslow (1984)	Todd R. Golub (2008)
Raif S. Geha (1986)	Victor Nizet (2008)
Stuart H. Orkin (1987)	Joel Hirschhorn (2011)
Alan L. Schwartz (1993)	Scott A. Armstrong (2012)
Margaret K. Hostetter (1995)	William Pu (2013)
Alan M. Krensky (1995)	Atul Butte (2014)
Donald Y. M. Leung (1997)	Loren Walensky (2015)
Jonathan D. Gitlin (1998)	Kimberly Stegmaier (2016)
Steve A.N. Goldstein (2001)	

### Society for Pediatric Research Young Investigator Award

Since the inception of the SPR Young Investigator award in 1983, Children's Hospital or BCRP-trained Faculty have won 42% of the awards given.

#### Residents who won the SPR Young Investigator Award (year awarded)

Alan L. Schwartz (1983)	Loren D. Walensky (2009)
Alan M. Krensky (1985)	Atul J. Butte (2010)
Edward Prochownik (1986)	Kimberly Stegmaier (2012)
Roger E. Breitbart (1988)	Sallie R. Permar (2014)
Nancy C. Andrews (1994)	Vijay G. Sankaran (2015)
Todd R. Golub (1997)	Jeff Dvorin (2016)
Louis J. Muglia (1999)	Daniel E. Bauer (2017)
Joel N. Hirschhorn (2004)	Alex Kentsis (2018)
Brian J. Feldman (2008)	

### Examples of Resident Careers

These examples are chosen from more than 250 leaders who graduated from residency between 1968 and 1992. The data were compiled in August 2007 and have been

updated where changes in status are known. The year of graduation from residency is listed in parentheses.

#### Senior Administrators

**Steven M. Altschuler, MD** (1982) - CEO of UHealth and Senior VP of Health Affairs, University of Miami. Previously, President and CEO, Children's Hospital of Philadelphia

**Jonathan R. Bates, MD** (1976) - President and CEO Emeritus, Arkansas Children's Hospital.

**Donald M. Berwick, MD** (1977) - Senior Fellow at the Center for American Progress. Previously, Director, US Government Centers for Medicare and Medicaid Services. Previously, President and CEO of the Institute for Healthcare Improvement; Lecturer, Department of Health Policy and Management, Harvard.

**Diana W. Bianchi, MD** (1983) - Director of the National Institute of Child Health and Human Development (NICHD). Previously, Vice Chair for Research and Executive Director of the Mother Infant Research Institute. Dept. of Pediatrics, Tufts.

**Kevin B. Churchwell, MD** (1990) - Executive Vice President for Health Affairs and Chief Operating Officer, Boston Children's Hospital. Previously, Sr Vice-President, Nemours and CEO, Nemours/Alfred I. duPont Hospital for Children in Wilmington, DE., and CEO and Executive Director, Monroe Carell Jr. Children's Hospital, Vanderbilt.

**Patrick Conway** (2005) - CEO, North Carolina Blues. Previously, Head of Center for Medicare and Medicaid Innovation, and Chief Medical Officer and Director of the Office of Clinical Standards and Quality, US Government Centers for Medicaid and Medicare Service.

**Alan L. Goldbloom, MD** (1976) - President and CEO, Children's Hospitals and Clinics of Minnesota, St Paul, MN, Emeritus Vice President and CEO, Hospital for Sick Children, Toronto, Canada.

**Steve A. N. Goldstein, MD, PhD** (1989) - University Professor, Senior Vice President and Provost, Brandeis University. Previously Chair, Dept of Pediatrics, Univ. of Chicago.

**Raymond S. Greenberg, MD, PhD** (1983) - President, Medical University of South Carolina.

#### Deans

**Herbert T. Abelson, MD** (1971) - Previously, Associate Dean of Admissions, Chicago, Chair, Dept of Pediatrics, Univ of Chicago, and Chair, Dept. of Pediatrics, Univ. of Washington, Seattle.

**Nancy C. Andrews, MD, PhD** (1990) - Dean, Duke University School of Medicine. Previously, Dean for Basic Sciences and Graduate Studies, Harvard Medical School and Investigator, Howard Hughes Medical Institute.

**Ellis D. Avner, MD** (1978) - Associate Dean for Research and Director, Children's Research Institute, Medical College of Wisconsin. Ex-Chair, Dept. of Pediatrics, Case-Western Reserve Univ. School of Medicine.

**W. Edwin Dodson** (1970) - Associate Vice Chancellor & Associate Dean for Admissions and Continuing Educ, Washington Univ, St Louis.

**S. Bruce Dowton, MD** (1984) - Principal of Dowton Consulting International, Inc. Previously, Dean of Medicine, University of New South Wales, Sydney, Australia, and Senior Vice-President and CEO, Partners Harvard Medical International.

**Alan E. Guttmacher, MD** (1985) - Previously, Director, National Institute of Child Health and Human Development, and before that Deputy Director, National Human Genome Research Institute, Director, Office of Policy, Communications and Education, NIH

**Ellis J. Neufeld, MD, PhD** (1988) - Executive Vice President, Clinical Director, Physician-in-Chief, of the St. Jude Children's Research Hospital. Previously Associate Chief, Hematology/Oncology Boston Children's Hospital, Harvard Medical School.

**Charles W. Roberts, MD, PhD** (1995) - Executive Vice President and Director of the St Jude Comprehensive Cancer Center, St Jude Children's Research Hospital, Memphis.

**Mark C. Rogers, MD** (1972) - Previously, Vice Chancellor of Health Systems, Duke Univ. Med. Ctr, Senior VP, Perkin-Elmer, and CEO Duke Hospital. Chairman and CEO of Bradmer Pharmaceuticals, Chairman of Cardiome Pharma Corp, and Chief Executive Officer of Paramount Capital Inc. Currently, Accounts Manager of AtCor Medical Limited.

**John R. Schreiber, MD** (1983) - CEO, Baystate Health and President, Baystate Medical Practices. Chair Emeritus, Dept. of Pediatrics, Tufts Univ and Dept of Pediatrics, Univ. of Minnesota.

**Stephen P. Spielberg, MD, PhD** (1976) - Previously, Dean, Dartmouth Medical School, Vice President of Pediatric Drug Development at Johnson & Johnson, and Deputy Commissioner of the Food and Drug Administration (FDA) for Medical Devices, Drugs, Biologics and Tobacco Products, and Special Medical Programs. Currently, Professor of Pediatrics and of Pharmacology and Toxicology at Dartmouth Medical School.

**Donald L. Weaver, MD** (1976) - Rear Admiral, US Public Health Service and previously, Acting Surgeon General, Deputy Associate Administrator for Primary Health Care in the Health Resources and Services Administration, and Director National Health Service Corps.

**Lewis First, MD** (1984) - Chair of Pediatrics and, previously, Sr Associate Dean, Educational and Curriculum Affairs, Vermont.

**Jody Heymann, MD, PhD** (1992) - Dean, Fielding School of Public Health, UCLA. Previously, Canada Research Chair in Global Health and Social Policy and Founding Director, Institute for Health and Social Policy, McGill University.

**Alan M. Krensky, MD** (1980) - Vice Dean for Development and Alumni Relations, Northwestern Feinberg School of Medicine. Previously, Deputy Director, NIH, and Associate Dean for Child Health, Stanford Medical School.

**Philip A. Pizzo, MD** (1973) - Dean Emeritus, Stanford University School of Medicine. Emeritus Chair of Pediatrics and Physician-in-Chief, Boston Children's Hospital.

**Norman Rosenblum, MD** (1984) - Associate Dean, Physician-Scientist Training and Associate Director, McLaughlin Centre for Molecular Medicine. Univ Toronto and Hosp for Sick Children.



## BOSTON COMBINED RESIDENCY PROGRAM

### Department Chairs

**Scott A. Armstrong, MD, PhD** (1998) - Chair, Dept. of Pediatric Oncology, Dana-Farber Cancer Institute, Harvard Medical School. Previously, Director, Leukemia Center, Memorial Sloan Kettering Cancer Center

**Harvey J. Cohen, MD, PhD** (1973) - Chair Emeritus, Dept. of Pediatrics, Stanford.

**J. Devn Cornish, MD, PhD** (1981) - Chair Emeritus, Dept. of Pediatrics. Currently, Vice-Chair for Faculty Development, Emory.

**Paul H. Dworkin, MD** (1976) - Chair of Pediatrics and Physician-in-Chief, Connecticut Children's Medical Center.

**Eric Eichenwald, MD** (1987) - Chair, Dept of Pediatrics, Univ of Texas, Houston.

**Erwin W. Gelfand, MD** (1970) - Chair, Dept. of Pediatrics, National Jewish Hospital, Denver.

**Jonathan D. Gitlin, MD** (1981) - Chair Emeritus, Dept. of Pediatrics, Monroe Carell Jr. Children's Hospital, Vanderbilt University.

**Margaret K. "Peggy" Hostetter, MD** (1978) - Chair, Dept. of Pediatrics, Cincinnati Children's Hospital. Chair Emeritus, Dept. of Pediatrics, Yale.

**Isaac S. "Zak" Kohane, MD, PhD** (1990) - Chair, Dept of Biomedical Informatics and Director, Countway Library of Medicine, Harvard Medical School. Director, Boston Children's Hospital Informatics Program.

**Bruce Korf, MD, PhD** (1983) - Chair, Dept. of Genetics, Alabama.

**Philip J. Landrigan, MD** (1970) - Professor & Chair, Dept. of Preventive Medicine and Director of the Children's Environmental Health Center, Mt Sinai, NY.

**Nobutake Matsuo, MD** (1971) - Chairman Emeritus, Dept of Pediatrics, Keio University School of Medicine, Tokyo, Japan.

**John F. Modlin, MD** (1974) - Chair, Dept. of Pediatrics, Dartmouth.

### Division Chiefs

**Kenneth Alexander, MD, PhD** (1991) - Chief, Infectious Diseases, Chicago

**Richard G. Bachur, MD** (1992) - Chief, Div. of Emergency Medicine, Boston Children's Hospital, Harvard

**Charles Berde, MD, PhD** (1983) - Chief, Division of Pain Medicine, Boston Children's Hospital, Harvard.

**Melvin Berger, MD** (1979) - Chief Emeritus, Allergy/Immunology, Case-Western Reserve. Currently, Senior Medical Director, Clinical Research and Development, CSL, Behring, LLC.

**Judith E. Brill, MD** (1980) - Chief, Pediatric Critical Care, Mattel Children's Hospital, UCLA

**Jeffrey P. Burns, MD** (1991) - Chief, Critical Care Medicine, Boston Children's Hospital, Harvard

**F. Sessions Cole, MD** (1978) - Director of Pediatric Newborn Medicine, Vice-Chair, Dept. of Pediatrics, Washington Univ. School of Medicine, St Louis.

**Jonathan M. Davis, MD** (1984) - Chief, Newborn Medicine, Tufts.

**S. Jean Emans, MD** (1973) - Chief, Adolescent Med, Boston Children's Hospital, Harvard Medical School

**E. Richard Moxon, MB BCh, FRS** (1972) - Professor and Chair, Dept. of Paediatrics, University of Oxford.

**Richard "Rick" J. O'Reilly, MD** (1973) - Chair, Dept. of Pediatrics, Memorial Sloan-Kettering Cancer Institute

**Stuart H. Orkin, MD** (1975) - Chair Emeritus, Dept. of Pediatric Oncology, Dana-Farber Cancer Institute, Harvard Medical School, Investigator, Howard Hughes Medical Institute.

**Scott Pomeroy, MD, PhD** (1985) - Neurologist-in-Chief and Chair, Dept. of Neurology, Boston Children's Hospital, Harvard.

**DeWayne M. Pursley, MD** (1987) - Neonatologist-in-Chief, Beth Israel Deaconess Medical Center, Harvard Medical School

**David S. Rosenblatt, MD** (1976) - Chair, Dept. of Human Genetics, McGill.

**David H. Rowitch, MD, PhD** (1992) - Chair, Dept of Pediatrics, Cambridge University, Cambridge, England. Previously, Chief, Div. of Neonatology, UCSF.

**J. Philip Saul, MD** (1985) - Chair, Dept. of Pediatrics, Nationwide Children's Hospital, Ohio State Univ., Columbus, OH

**Nina F. Schor, MD, PhD** (1984) - Chair, Dept. of Pediatrics, Rochester.

**Alan L. Schwartz, MD, PhD** (1979) - Chair, Dept. of Pediatrics, Washington Univ., St Louis.

**Gary A. Silverman, MD, PhD** (1987) - Chair, Dept of Pediatrics, St Louis Children's Hospital, Washington Univ. in St Louis.

**Charles F. Simmons Jr, MD** (1983) - Chair, Dept. of Pediatrics, Cedars-Sinai Medical Center, Los Angeles.

**Mitchell J. Weiss, MD, PhD** (1991) - Chair, Dept. of Hematology, St Jude Children's Research Hospital, Memphis.

**Christopher B. Wilson, MD** (1975) - Chair, Dept. of Immunology, Univ. of Washington, Seattle. Previously, Interim Director, Global Health Discovery, Bill and Melinda Gates Foundation.

**James J. Filiano, MD** (1985) - Chief, Pediatric Critical Care, Dartmouth.

**Raif S. Geha, MD** (1971) - Chief, Div. of Allergy and Immunology, Boston Children's Hospital, Harvard Medical School.

**Stephen E. Gellis, MD** (1976) - Chief, Division of Pediatric Dermatology, Boston Children's Hospital, Harvard Medical School.

**Jeffrey S. Gerdes, MD** (1980) - Chief, Section of Newborn Pediatrics, Associate Chair, Dept of Pediatrics, Pennsylvania Hospital.

**Ira H. Gewolb, MD** (1979) - Chief, Neonatology and Assoc Chair for Research, Michigan State

**Catherine M. Gordon, MD** (1994) Chief, Division of Endocrinology, Brown

**Ian Gross, MD** (1972) - Chief, Div. of Perinatal Medicine, Yale.

**Jin S. Hahn, MD** (1985) - Chief Emeritus, Div. of Neurology, Stanford

**Jeffrey S. Hyams, MD** (1978) - Head, Div. of Gastroenterology and Nutrition, Connecticut Children's Medical Center

## BOSTON COMBINED RESIDENCY PROGRAM

**Lawrence C. Kaplan, MD** (1984) - Chief Emeritus, Developmental Pediatrics, Wisconsin (Madison). Director Emeritus, Div of Genetics and Child Health, Dartmouth.

**Janice D. Key, MD** (1983) - Director, Div. of Adolescent Medicine, Medical Univ. of South Carolina.

**Barry Kosofsky, MD, PhD** (1988) - Chief, Div. of Pediatric Neurology, Cornell.

**Karl Kuban, MD** (1978) - Chief, Pediatric Neurology, Boston Medical Center, Boston Univ.

**Andrew L. Kung, MD, PhD** (1996) - Chief, Division of Hematology, Oncology and Bone Marrow Transplantation, Columbia

**Roger L. Ladda, MD** (1972) - Chief, Human Genetics, Growth & Development, Penn State.

**Edward Lawson, MD** (1975) - Director, Neonatal-Perinatal Medicine, Johns Hopkins.

**Donald Y.M. Leung, MD, PhD** (1980) - Head, Div. of Pediatric Allergy and Immunology, National Jewish Medical and Research Center, Denver,

**Michael Link, MD** (1977) - Chief, Pediatric Hematology/Oncology, Stanford

**Jeffrey M. Lipton, MD, PhD** (1978) - Chief, Hematology-Oncology and Stem Cell Transplantation, Schneider Children's Hospital, Albert Einstein.

**Samuel E. Lux IV, MD** (1970) - Chief Emeritus, Div. of Hematology/Oncology and Vice-Chair for Research, Boston Children's Hospital, Harvard Medical School.

**William Maniscalco, MD** (1975) - Chief, Div. of Neonatology, Rochester.

**Peter E. Newburger, MD** (1977) - Chief, Pediatric Hematology/Oncology, Univ. of Massachusetts

**John A. Phillips III, MD** (1975) - Director, Div. of Genetics and Genomic Medicine, Vanderbilt.

**David A. Piccoli, MD** (1983) - Chief, Gastroenterology, Hepatology and Nutrition. Children's Hospital of Philadelphia

**David G. Poplack, MD** (1972) - Chief, Pediatric Hematology/Oncology, Baylor.

**Leonard A. Rappaport, MD** (1980) - Chief, Division of Developmental Medicine, Boston Children's Hospital, Harvard.

**J. Routt Reigart II, MD** (1970) - Director Emeritus, General Pediatrics, Medical Univ. of South Carolina.

**Clement L. Ren, MD** (1990) - Chief, Div. of Pediatric Pulmonology/Allergy, Rochester.

**Mark E. Rothenberg, MD, PhD** (1992) - Director, Div of Allergy/Immunology, Cincinnati.

**Philip J. Saul, MD** (1985) - Chief, Div. of Pediatric Cardiology, Medical Univ. of South Carolina.

**Charles D. Scher, MD** (1972) - Chief, Pediatric Hematology-Oncology, Tulane

**Mark A. Schuster, MD, PhD** (1991) - Chief of General Pediatrics, Boston Children's Hospital, Harvard Medical School. Formerly, Chief of General Pediatrics and Vice Chair for Health Services, Policy, and Community Research, UCLA.

**Robert D. Sege, MD, PhD** (1991) - Previously, Director, Div. of Ambulatory Pediatrics, Boston Medical Center, Boston Univ.

**Yao Sun MD, PhD** (1992), Chief, Division of Neonatology, University of California, San Francisco.

**Victor C. Strasburger, MD** (1978) - Chief, Div. of Adolescent Medicine, New Mexico

**Stephen J. Teach, MD** (1991) - Chief, Div. of Allergy and Immunology, Children's National Medical Center

**William R. Treem, MD** (1980) - Section Chief, Pediatric Gastroenterology, Hepatology and Nutrition, SUNY Downstate.

**Alan S. Wayne, MD** (1988) - Chief, Division of Pediatric Hematology/Oncology, Univ of Southern California. Previously, Head, Hematologic Diseases Section, Pediatric Oncology Branch, National Cancer Institute, NIH.

**Lawrence C. Wolfe, MD** (1979) - Chief Emeritus, Div. of Pediatric Hematology/Oncology, Tufts. Currently at Schneider Children's Hospital, New Hyde Park, NY.

**Peter F. Wright, MD** (1970) - Chief Emeritus, Div. of Pediatric Infectious Diseases, Vanderbilt. Currently at Dartmouth-Hitchcock Medical Center.

## Heads of Major Clinical Programs

**Corrie T. M. Anderson, MD** (1985) - Previously Clinical Program Director, Pain Management, Dept. of Anesthesia, Univ. of Washington, Seattle

**Marc Baskin, MD** (1986) - Chief, Short Stay Unit, Boston Children's Hospital, Harvard

**Leslie V. Boyer-Hassen, MD** (1988) - Medical Director, Arizona Poison Control Center, Medical Director, Toxicology Laboratory, Arizona

**Lisa R. Diller, MD** (1988) - CMO, Dana-Farber/Children's Hospital Cancer and Blood Disorders Center. Clinical Director of Pediatric Oncology, Dana-Farber Cancer Institute and Boston Children's Hospital, Harvard Medical School

**Jonathan Finkelstein, MD** (1991) - Vice-Chair for Quality and Outcomes, Dept of Medicine, Boston Children's Hospital, Harvard Medical School, Boston

**Alan M. Leichtner, MD** (1980) - Vice-Chair for Clinical Services and Associate Chief, Div. of Gastroenterology and Nutrition. Boston Children's Hospital, Harvard Medical School

**Edgar K. Marcuse, MD** (1970) - Associate Medical Director of Quality Improvement, Univ. of Washington, Seattle

**Lynne M. Mofenson, MD** (1980) - Chief, Pediatric, Adolescent and Maternal AIDS Branch. Center for Research for Mothers and Children, NICHD, NIH.

**D. Holmes Morton, MD** (1986) - Director, Clinic for Special Children, Strasburg, PA.

**James Moses, MD MPH** (2005) - Director of Quality and Patient Safety, Department of Pediatrics, Boston Medical Center

**Jane Newburger, MD** (1977) - Associate Chief for Academic Affairs, Dept. of Cardiology, Boston Children's Hospital, Harvard Medical School

## BOSTON COMBINED RESIDENCY PROGRAM

**Hans C. Oettgen, MD, PhD** (1990) - Associate Chief, Div. of Allergy/Immunology, Boston Children's Hospital, Harvard Medical School.

**Peter C. Phillips, MD** (1981) - Director, Pediatric Neuro-oncology, Children's Hosp of Philadelphia

**Thomas N. Robinson, MD** (1991) - Director, Ctr for Healthy Weight, Div of General Pediatrics, Stanford

**Jonathan J. "Jack" Rome, MD** (1986) - Director, Cardiac Catheterization Laboratory, Associate Chief for Clinical Affairs, Children's Hospital of Philadelphia

**Stephen J. Roth, MD** (1989) - Director of Pediatric Cardiovascular Intensive Care, Stanford

**Benjamin L. Shneider, MD** (1989) - Director, Hepatology Center, Children's Hospital of Pittsburgh.

**Anne M. Stack, MD** (1991) - Director of Clinical Operations, Div of Emergency Medicine, Boston Children's Hospital, Harvard Medical School.

**Elizabeth Woods, MD** (1982) - Associate Chief, Div of Adolescent/Young Adult Medicine, Boston Children's Hospital, Harvard Medical School.

## Senior Researchers and Research Administrators

**Jan L. Breslow, MD** (1971) - Head, Lab of Biochemical Genetics and Metabolism, Rockefeller Univ. Past-President, American Heart Association.

**James L. M. Ferrara, MD** (1983) - Professor and Director, Hematologic Malignancies Translational Research Center, Tisch, School of Medicine, Mount Sinai

**Todd R. Golub, MD** (1992) - Director, Cancer Program, The Broad Institute of Harvard and MIT. Professor, Pediatrics, Boston Children's Hospital and Dana-Farber Cancer Institute. Investigator, Howard Hughes Medical Institute.

**Lisa Guay-Woodford, MD** (1986) - Director, Center for Translational Science, Children's National Medical Center, Washington, DC. Previously, Director, Division of Genetic and Translational Medicine and Vice Chair, Dept of Genetics, Univ. of Alabama.

**Mark A. Israel, MD** (1976) - Director, Norris Cotton Cancer Center, Dartmouth.

**Julie R. Korenberg, MD, PhD** (1982) - Director, Center for Integrated Neurosciences and Human Behavior at the Brain Institute, Utah. Previously, Director of Pediatric Research and Director of Neurogenetics, Medical Genetics Inst. Vice-Chair for Pediatrics Research, Cedars-Sinai, Los Angeles

**Stephan Ladisch, MD** (1976) - Previously, Director, Ctr for Cancer and Transplantation Biology and Scientific Dir., Children's Research Inst., Vice-Chair, Pediatrics, George Washington.

**Roderick R. McInnes, MD, PhD** (1978) - Director of Research, Lady Davis Institute of Medical Research, Jewish General Hospital, McGill. Previously, University Professor, Chair, Dept of Molecular Medicine and Scientific Dir., Inst. of Genetics, Hospital for Sick Children, Toronto.

**Louis J. Muglia, MD, PhD** (1991) - Co-Director, Perinatal Institute, Division of Neonatology and Director, Center for Prevention of Preterm Birth, Cincinnati Children's. Previously, Vice Chair for Research Affairs in Pediatrics, Vanderbilt and Director, Div. of Pediatric Endocrinology and Diabetes, Washington University, St Louis.

**Stuart H. Orkin, MD** (1975) - Investigator, Howard Hughes Medical Institute, Boston Children's Hospital. Chair, Dept. of Pediatric Oncology, Dana-Farber Cancer Institute. Harvard Medical School

**David S. Pellman, MD** (1989) - Investigator, Howard Hughes Medical Institute. Professor, Pediatrics. Dana-Farber Cancer Institute and Boston Children's Hospital. Harvard Medical School

**Edward V. Prochownik, MD, PhD** (1981) - Director of Oncology Research, Pittsburgh.

**Bonnie W. Ramsey, MD** (1979) - Director, Center for Clinical and Translational Research, Univ. of Washington.

**Evan Y. Snyder, MD, PhD** (1983) - Program Director, Stem Cells and Regeneration, Burnham Institute, LaJolla.

**Anne E. Trontell, MD** (1990) - Program Director, Center for Education & Research on Therapeutics. Agency for Healthcare Research and Quality, Dept. of Health and Human Services

**Linda Van Marter** (1983) - Vice Chair for Research, Dept of Newborn Medicine, Brigham and Women's Hospital

**Paul H. Wise, MD** (1981) - Director, Center for Policy, Outcomes and Prevention, Stanford.

## Education Leaders

**William A. "Jerry" Durbin, MD** (1977) - Vice Chair and Residency Program Director, Dept. of Pediatrics, Univ. Massachusetts.

**Alan M. Leichtner, MD, MSHPEd** (1980) - Chief Medical Education Officer in the Dept of Medical Education at Boston Children's Hospital.

**Frederick H. Lovejoy Jr, MD** (1969) - Vice Chair for Academic Affairs and Associate Physician-in-Chief. Previously, Residency Program Director, Boston Children's Hospital, Harvard Medical School

**Theodore C. Sectish, MD** (1980) - Vice Chair for Education and Pediatric Residency Program Director, Boston Children's Hospital, Harvard Medical School. Executive Director, Federation of Pediatric Organizations. Previously, Residency Program Director, Stanford. Past-President of the Association of Pediatric Program Directors.

**Emmett V. Schmidt, MD, PhD** (1984) - Previously, Pediatric Residency Program Director, MassGeneral Hospital for Children, Harvard Medical School.

**Edwin Zalneraitis, MD** (1978) - Assistant Dean for Medical Education and Residency Program Director, Connecticut.



## BOSTON COMBINED RESIDENCY PROGRAM

### Biotech or Other Business Leaders

**Spencer Borden IV, MD, MBA** (1971) - Senior Managing Scientist, Exponent Consulting and Director of Employer Outcomes Research, Johnson & Johnson Health Care Systems, Inc. Previously, Senior Medical Consultant of Watson Wyatt Worldwide; Medical Director of Value Health Sciences, MediQual Systems and of Aetna Life Insurance Company; and CEO, Integrity Consulting. Emeritus Chair, Depts of Pediatric Radiology, CHOP & MGH.

**Kenneth M. Borow, MD** (1977) - President and CEO Encomium Group, Inc. Previously, President and CEO, Covalent Group, Inc.

**Michael J. Brownstein, MD, PhD** (1974) - Co-Founder and Chairman of the Board, Alluvium Biosciences. Previously, Chief Scientific Officer, Exponential Biotherapies, Bethesda, MD. Director of Functional Genomics, J Craig Venter Institute, Rockville, MD, and Chief, Laboratory of Genetics, NIMH/NHGRI.

**R. Alan B. Ezekowitz, MB ChB, DPhil** (1988) - President, Co-Founder and CEO, Abide Therapeutics. Previously, Senior Vice President and Franchise Head, Immunology, Respiratory and Endocrine, Merck Research Laboratories. Chief, Dept of Pediatrics, Massachusetts General Hosp, Harvard Medical Sch.

**Roslyn Feder, MD, PhD** (1988) - Previously, Senior Vice President for External Development at Bristol-Myers Squibb.

**William H. Harris, MD, PhD** (1984) - Co-Founder, President and Chief Scientific Officer, MariCal, Inc., Portland, ME.

**Allen J. Hinkle, MD** (1979) - Executive Vice President and Medical Affairs Officer, MVP Health Care. Previously, Sr VP and Chief Medical Officer, Tufts Health Plan and Senior Medical Director and Vice President of Health Care Quality, Policy and Innovations at Blue Cross Blue Shield of Massachusetts.

**David S. Hodes, MD** (1972) - Previously, Medical Director, Roche Laboratories. Chief Emeritus, Pediatric Infectious Diseases, Mt Sinai

### Authors

**Perri Klass, MD** (1989) - Professor of Pediatrics and Journalism, and Director, Arthur L. Carter Journalism Institute, New York University, and award winning author of three novels, two other books, two short story collections and three essay collections. Regular contributing author: New York Times, Washington Post, Boston Globe, and many magazines.

### Other Leaders

**David M. Bell, MD** (1980) - Sr Medical Officer, Maternal and Child Health Branch, Division of HIV/AIDS, National Center for Infectious Diseases, Centers for Disease Control and Prevention.

**Jonathan E. Fielding, MD, MPH, MBA** (1972) - Director of Public Health and Public Health Officer, Los Angeles County, and Professor of Public Health and Pediatrics, UCLA. Previously Vice President, Johnson & Johnson; and Massachusetts Commissioner of Public Health.

**Jed Gorlin, MD** (1985) - Medical Director, Memorial Blood Centers, Minneapolis.

**Richard A. Insel, MD** (1972) - Chief Scientific Officer, Juvenile Diabetes Research Foundation International. Previously, Director of the Center for Human Genetics and Molecular Pediatric Disease, Rochester.

**Anula Jayasuriya, MD, PhD, MBA** (1992) - Life science private equity and venture capital investor with ATP Capital in San Francisco. Co-founder and Managing Director of the Evolve India Life Science Fund, based in Hyderabad. Previously a partner with Skyline Ventures, a principal with Techno Venture Management, and Vice President and Head of Corporate Development for Genomics Collaborative.

**Cameron "Geoff" McDonough, MD** (1997) - Chief Executive Officer and President at Swedish Orphan Biovitrum AB. He also held several senior leadership positions at Genzyme Corporation and is currently its President of the organization in Europe.

**Linda McKibben, MD, DrPh** (1986) - Medical Officer, Food and Drug Administration. Principal, Linda McKibben Health Policy & Research Consulting. Previously, Vice President, The Lewin Group (Health Care and Human Services Consulting) and Senior Advisor on Health Services Research in the Office of the Director of the Division of Health Quality Promotion at the CDC's National Center for Infectious Diseases.

**Mark C. Rogers, MD** (1972) - Accounts Manager of AtCor Medical Limited. Previously, CEO of Paramount Capital, Chairman and CEO of Bradmer Pharmaceuticals; and Chairman of Cardiome Pharma Corp; Founder, Officer or Director at Genta Inc., Adherex Technologies Inc., PolaRx Biopharmaceuticals Inc., and Aptamera; Sr VP and CTO, Perkin-Elmer Corp; President, Paramount Capital; Chairman of Anesthesiology and Critical Care, Johns Hopkins; Vice Chancellor of Health Systems, Duke Univ. Med. Ctr and CEO Duke Hospital.

**James (Jim) Woody, MD, PhD** (1971) - Venture Capital Partner, Latterell Venture Partners, Menlo Park, CA. Formerly President of Roche Bioscience in Palo Alto, California. Previously Chief Scientific Officer and Senior Vice President of R&D for Centocor.

**Claire McCarthy, MD** (1991) - Medical Communications Director, Boston Children's Hospital and Senior Medical Editor for Harvard Health Publications. Author of two books ("How the Heart Beats" and "Everyone's Children") and frequent contributor to Newsweek and other magazines. Previously, General Pediatrician Director, Martha Eliot Health Center, Boston Children's Hospital, Harvard.

**Nabil M. Kronfol, MD** (1972) - Professor, Health Services Administration, American University of Beirut; Senior Consultant, Health Systems and Health Manpower, President of the Lebanese Health Care Management Association, Beirut.

**Jon E. Rohde, MD** (1973) - International Public Health Consultant. Professor and Co-chair of the Board of the James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh. Former Director of the EQUITY Project, South Africa and Emeritus Professor, University of Cape Town, SA.

**Lauren A. Smith, MD** (1996) - Director Emeritus and before that Medical Director of Massachusetts Department of Public Health.

**David N. Sundwall, MD** (1973) - Previously, Executive Director, Utah Department of Health; Vice President and Med Director, American Healthcare Systems; Administrator in the Health Resources and Services Administration; and Assistant Surgeon General, U.S. Public Health Service.

# Application Process

## What Are We Looking For?

Graduates of medical schools in the United States and other countries are eligible to apply. We seek applicants who are intelligent, curious, creative, energetic, personable, and accomplished. We are very interested in having a diverse residency class and wish to attract exceptional applicants with wide-ranging interests and talents from all parts of the country and beyond. We are especially interested in those who will become leaders in one or more of the many areas of academic pediatrics: medical care, laboratory or clinical research, teaching, patient advocacy, public policy or global health.

## PL-1 Applicants

### Three Year Pediatric Residency Positions

We accept up to 36 PL-1 residents in the Categorical Track, including the various combined program described below, and up to 11 residents in the Urban Health and Advocacy Track. For PL-1 positions, the Boston Combined Residency Program in Pediatrics (BCRP) participates in the National Resident Matching Program (NRMP) through the Electronic Residency Application Service (ERAS). Applications will only be accepted through ERAS.

Candidates may apply to either one or both tracks. **We recommend applying to both.** Each track has its own NRMP match number. The tracks are listed in the NRMP Directory as follows:

Boston Combined Residency Program in Pediatrics

- Peds/Boston Children's Hospital: #1259320C0
- Peds-Urban Health Advocacy/Boston Medical Center: #1259320C1

### Two Year Pediatric Residency Positions

- **Special Alternative Pathways ("Fast-tracking")**

We allow residents to enter both of the special alternative research pathways offered by the American Board of Pediatrics: the Accelerated Research Pathway and the Integrated Research Pathway.

- **Combined Pediatrics-Medical Genetics**

The BCRP is one of the few residency programs in the country that offers combined training in pediatrics and medical genetics. The program is



*We start recruiting future interns early*

described in more detail [here](#). We can accommodate up to two such positions a year. Applicants interested in this option should contact Dr Amy Roberts ([amy.roberts@cardio.chboston.org](mailto:amy.roberts@cardio.chboston.org)). The application is submitted as described above for PL-1 applicants. Please clarify in either your personal statement or by separate communication with Drs. Roberts and Lux ([lux@enders.tch.harvard.edu](mailto:lux@enders.tch.harvard.edu)) that you are interested in the combined program. Those invited for a BCRP interview will have additional interviews with the clinical genetics faculty. The combined program has its own NRMP Match number listed in the NRMP Directory as: Pediatrics/Medical Genetics #7652444017. **Applicants interested in the combined Pediatric-Medical Genetics program should also apply to the BCRP and make their interest in genetics clear in their personal statement.**

- **Child Neurology–Boston Children's Hospital\**

We offer 2-year positions for a subset of residents who match in the child neurology residencies at Boston Children's Hospital or Boston Medical Center, but who first need to complete two years of pediatric residency training.

Boston Children's Hospital offers five positions in a combined BCRP Pediatrics-Child Neurology program (termed the "Categorical Child Neurology" program) in which the match is for 2 years of general pediatrics (beginning 2019) in the Categorical Track of the Boston Combined Residency Program in pediatrics, and three years of child neurology at Boston Children's Hospital (beginning 2021). Applicants who

## BOSTON COMBINED RESIDENCY PROGRAM

match in this track are guaranteed a position in the BCRP. The NRMP Match number for the combined BCRP Pediatrics-BCH Child Neurology program is #1259185C0. **Applicants to the categorical child neurology track should also apply to the Categorical Track of the BCRP (#1259320C0) as this simplifies processing of the combined application.** They should make their intentions clear in their personal statement.

- **Child Neurology–Boston Medical Center**

The **child neurology program at Boston Medical Center** offers one Categorical and one Advanced position. Applicants who match in the Categorical position are guaranteed a position in the UHAT track in the BCRP beginning in 2019 and will begin their child neurology training in 2021. Applicants who match in the Advanced position will also begin their child neurology training at BMC in 2021 but must match independently in pediatrics. The NRMP Match number for the Categorical track is 1257185C0. The number for the Advanced track is #1257185A0.

**Applicants interested in either of these Child Neurology programs should also apply to the UHAT track** in the BCRP and make their interest in child neurology clear in their personal statement.

Each of the various neurology tracks can be ranked independently in the match.

- **Neurodevelopmental Disabilities Preliminary Position**

The BCRP offers one two-year Preliminary-NDD position (#1259320P1) in the Categorical track of the BCRP to those who match in the Boston Children's Hospital Neurodevelopmental Disabilities (NDD) training program (#1259186A0). NDD is an ACGME-accredited program combining 2-years of pediatric training with 1-year of adult neurology and adult NDD, 18-months of clinical NDD and child neurology, and 18-months of basic and clinical sciences. Upon completion of the training, the resident is board eligible for Pediatrics, Neurology, and Neurodevelopmental Disabilities with Special Competency in Child Neurology.

The Boston Children's Hospital NDD position is of the "Advanced" type, meaning a four-year NDD position, which begins in 2021. However, the hospital also offers a linked two-year BCRP Preliminary position, open only to NDD applicants, that allows applicants who match in NDD to complete their entire six-year NDD training in Boston.

NDD applicants should contact Dr. David Urion (david.urion@childrens.harvard.edu), who leads both

the NDD and Child Neurology training programs at Boston Children's Hospital.

NDD applicants interested in the Preliminary pediatrics position **should apply for a Categorical position in the BCRP as well as to the Preliminary match. This is very important as it makes it much easier for us to process the application.** They should also make their interest in NDD clear in their personal statement.

- **Combined Pediatrics-Anesthesiology**

The BCRP was one of the first residency programs to offer combined training in Pediatrics and Anesthesiology. Residents begin their first year in pediatrics residency. The following year is the first year of anesthesiology training, followed by three years of integrated residency training in both pediatrics and anesthesiology. Throughout the three years of integrated training, while residents are doing core training in Pediatrics or Anesthesiology, they will be expected to attend conferences and participate in core clinical activities once a month in the other discipline to make the combined program fully integrated.

Individuals ideally suited for this combined training will likely pursue careers at the interface between critical care, pediatrics, and anesthesiology. Examples of such careers include hospitalist medicine, pain and palliative care, out-of-operating room procedural and sedations services, and members of integrated subspecialty teams in pediatrics, critical care and anesthesiology.

Applicants interested in Pediatrics-Anesthesiology should make their interest evident in their personal statement or by separate communication with Dr. Sam Lux. They should also notify Dr. Morana Lasic, who directs resident selection in Anesthesiology at the Brigham and Women's Hospital. **Applicants should apply to both Pediatric Anesthesiology in ERAS (#1259726C0) and to the Categorical Pediatrics Track of the BCRP (#1259320C0). This is very important as it is difficult for us to process and keep track of an application that is not in the Categorical Pediatrics database.** We will forward a copy of the application to Dr. Lasic.

Applicants may also apply to the UHAT pediatrics track in the BCRP if they wish. Applicants who also wish to apply to Categorical Anesthesiology at the Brigham should submit a separate application to that program and make their interest in the combined program as well as the categorical anesthesiology



## BOSTON COMBINED RESIDENCY PROGRAM

program clear in their personal statement in that application.

### One Year Pediatric Residency Positions

We currently do not offer one-year preliminary positions in pediatrics.

### Deadline

**All PL-1 applications should be received by October 31, 2018.** While we will consider applications received after that date, interviews are only occasionally granted to late applicants. Because of the volume (more than 1700 applications), we appreciate receiving applications early. Applicants should update their applications anytime they have significant new information (e.g., election to AOA or other honors, Step II scores, acceptance of a major paper, etc.). To ensure the information is noted, they should also email Dr. Sam Lux.

Applicants who accept an appointment elsewhere, or who for any reason wish to withdraw, are requested to notify Dr. Lux and the NRMP immediately.

## Requirements

The application must include the following:

- Dean's letter (MSPE) and transcript
- Application form
- At least three letters of reference. At least one should be from someone who worked closely with you on a pediatrics rotation and who writes many letters for students, such as the student clerkship director, the director of inpatient services, a senior clinician, or one of the residency program directors. A pro forma "departmental letter" is not requested or desired unless the writer(s) know the applicant well.
- Curriculum vita, including honors and publications
- USLME scores (Step I required, Steps II and III if available)
- Personal statement. While we recognize that most applicants use a generic personal statement for all applications, **we are much more interested in learning about you personally, than about why you chose pediatrics.** We want to know where you grew up and your accomplishments (things you're proud of), your passions, key research experiences, leadership experiences, creative or unusual things you've done, and **what you are thinking of doing beyond your residency.** Please attach an addendum



to your generic personal statement discussing these things if they are not otherwise covered.

- Good quality color photograph (ideally head and shoulders with a plain background).
- Applicants with an MD/PhD or other comparably extensive research experiences should also include a letter from their research supervisor.

We do **not** use board scores, grades or other metrics to filter applications. All applications are examined and the majority are read thoroughly and summarized in a 200 to 700 word paragraph that incorporates all the information we have. Decisions as to whether to interview or how highly to rank an applicant depend on the totality of the applicant's record from college onward, including extracurricular accomplishments, passions, personality, leadership and other factors as well as academic achievement.

## International Applicants

We are very interested in training the **very** best international medical graduates and have a long record of doing so. All international medical graduates must apply through ERAS.

- To be seriously considered, international medical graduates must have an **exceptional** medical school record and **have received the kinds of prizes, medals or awards that are given to the very top students.** In most cases they will also have a **strong record of accomplishment in research, or prior residency training in pediatrics, or both.**
- International applicants should be **ECFMG certified** by October 31, 2018, our application deadline, and must be ECFMG certified by the completion of interviews on Jan 11, 2019 or they will not be

## BOSTON COMBINED RESIDENCY PROGRAM

considered by the selection committee. In rare cases an exception will be made for candidates who will graduate at the end of the calendar year and cannot apply for ECFMG certification until they have graduated. In these cases the applicant must obtain the approval of Dr Lux and must pass all ECFMG examinations by Jan 11th. This includes USMLE Step 1, the Step 2 Clinical Knowledge test, and the Step 2 Clinical Skills test.

- USMLE scores **must be above 210 on the first attempt** and ideally should be above 230.
- Applicants must demonstrate excellent spoken and written English and the ability to work in a modern, high complexity medical center. This is best done by one or more rotations during medical school involving direct patient contact on a pediatric or internal medicine inpatient or consult service at a major teaching hospital in the United States or other English-speaking country. Applicants who lack such rotations will be considered if they have an **exceptional** academic record in medical school, have trained at other outstanding medical centers, have high USMLE scores, and have extensive research experience.
- At least two of the letters of recommendation must be from physicians who are very familiar with the applicant's clinical skills. Letters from physicians at the applicant's medical school or other training institution(s) who have trained in the US are especially useful. **We rarely find "observerships" useful in evaluating applicants** and suggest that applicants not have letters sent from those who observed them on such experiences unless the applicant worked very closely with the letter writer for a considerable period in caring for patients.

Our two hospitals are able to sponsor both H1b and J1 visas, assuming there are no changes in US Immigration policies. An H1b visa requires that an applicant successfully complete USMLE Step 3. With rare exceptions, we require that the USMLE step 3 examination be completed by January 11, 2019 for us to obtain an H1b visa.

## Couples Match

Applicants who are participating in the couples match and are invited to interview should email Dr Lux the name of the Boston-area hospital(s) to which their spouse or significant other is interviewing.

## Student Rotations

### Children's Hospital

Students interested in doing rotations in pediatrics or pediatric subspecialties at Boston Children's Hospital should contact the Registrar's Office at Harvard Medical School. Students can select up to 3 rotation month blocks and specify up to 15 course selections. The Registrar gives priority to Harvard Medical students, so outside students sometimes won't know their elective until 4-6 weeks before it begins. If all their choices are full, the Registrar will check if there are any vacancies in the less popular electives.

Phone: (617) 432-1515

Email: [exclerks@hms.harvard.edu](mailto:exclerks@hms.harvard.edu)

### Boston Medical Center

Students interested in doing elective rotations at Boston Medical Center should contact the Registrar's office at Boston University School of Medicine. BUSM does not accept international medical students for elective rotations.

Phone: (617) 638-4160

### Minority Recruitment

Boston Medical Center and Harvard Medical School have well-established Minority Recruitment Programs. These programs provide housing and financial assistance for travel.

### Observerships

Neither Children's Hospital nor Boston Medical Center encourage rotations where students function simply as observers. However, a few divisions and departments at Children's Hospital offer [observership opportunities](#).

## Interviews

We read do not read applications in any systematic order and we issue invitations for interviews when enough information is available for us to make a decision. In most cases this is not until after Dean's Letters arrive on October 1st. This is almost always the case for institutions where clerkship grades are only revealed in the Dean's Letter. **However, we rarely finish reading all our applications before early November, so applicants should not expect to hear from us before then.** Often, some applicants from a school will be invited to interview before others are. This is usually just a consequence of

## BOSTON COMBINED RESIDENCY PROGRAM

our reading some applications before others and should not be a cause for concern. **We expect that all applicants will be notified about their interview on or before November 5th** unless applications are incomplete at that time. As noted earlier, we review applications that are received after the October 31st deadline, but interviews are rarely granted to those who apply late unless there are extenuating circumstances.

### Interview days for 2018-2019

- Thursday, November 15th
- Monday, Nov 19th
- Tuesday, Nov 27th
- Tuesday, Dec 4th
- Friday, Dec 7th
- Friday, Dec 14th
- Tuesday, Dec 18th
- Friday, Jan 4th
- Friday, Jan 11th

Approximately 32 candidates are invited for each interview day or about one of every 6 applicants.

### MD/PhD Days

Candidates with MD/PhD degrees or PhD-like research experiences who plan research careers following residency are invited to participate in additional sessions on one of the Thursday afternoons before the December 14th and January 11th interview days. These sessions have been very popular in the past. They are designed to acquaint applicants with the research and fellowship opportunities in the Boston area and give them a chance to meet several scientists in their areas of interest. The applicants also have dinner with residents who plan to become physician-scientists. The MD/PhD days are entirely optional and are not part of the evaluation process.

### Diversity Dinners

The BCRP embraces all forms of diversity, including but not limited to race, ethnicity, disability, gender identity, and sexual orientation. Applicants who identify as a member of one or more of these or similar groups are invited to an informal dinner the evening before their interview to familiarize them with special opportunities available within the BCRP and discuss any questions they may have about the program or the local community.

### The Interview Day

Orientation for the day begins with breakfast at 7:30 AM. Half the group starts at Children's Hospital and half at

Boston Medical Center. There is a single interview and a tour at each hospital by one of the BCRP residents. The interviews are low key and are meant to be an opportunity for applicants and faculty to get to know each other. An effort is made to choose interviewers who have something in common with the applicants, though this is not always possible. Applicants also attend one of the morning teaching conferences and participate in informal information and question-answer sessions. They are then transported to the other hospital, where they lunch with the residents and repeat the itinerary. The day officially ends at 4:30 PM; however, there is an optional Happy Hour from about 5:30 pm to 8 or 9 PM, hosted by the residents. This is a great chance for those who can stay to talk with the residents and is **highly recommended**. Applicants tell us this is one of the most important parts of the day. Some applicants may wish to extend their visit, or come a day early to allow more time for observation on the clinical services or to meet individuals in their specific areas of interest. We are happy to help make such arrangements, if desired.

### Second Visits

Second visits can be arranged to attend rounds, meet with selected faculty or residents, and explore housing or other issues. We are happy to do this if the visit will assist you in evaluating the BCRP. Second visits are not expected and do not play a role in the selection process. If you are interested in a second visit contact Elayne Fournier ([bcrp@childrens.harvard.edu](mailto:bcrp@childrens.harvard.edu)), who will work with the chief residents and Dr Lux to arrange it.

### The Selection Process

Separate selection committees evaluate candidates for each of the two tracks. Both committees include chief residents, as well as junior and senior faculty who are clinicians and researchers from a broad range of specialties. The selection process is entirely subjective. No formulas of boards scores, grades, or other criteria are used, either for selecting applicants for interviews or in preparing the rank order list. Similarly no attention is paid to the likelihood that a candidate will or will not rank the BCRP favorably. The committees are looking for candidates who are perceived to have a strong likelihood of success in an academic career involving advocacy, community service, public policy or international health (Urban Health and Advocacy Track) or success in an academic career focusing on clinical care and/or research in traditional subspecialty pediatrics, including academic or community general pediatrics (Categorical Track). There is considerable overlap in these two missions. Most applicants are suitable for both tracks



## BOSTON COMBINED RESIDENCY PROGRAM

and many candidates are highly ranked on both rank order lists. For this reason, and because the tracks are very similar from a resident's point of view, **most applicants should apply to both tracks.**

### PL-2 and PL-3 Applicants

Applications for PL-2 or PL-3 positions for 2018 will be accepted if positions are available. There are usually several open positions in each year. Interested applicants should mail their CV and Personal Statement to Theodore Sectish, MD (Department of Medicine, Boston Children's Hospital, 300 Longwood Ave, Boston, MA 02115; [theodore.sectish@childrens.harvard.edu](mailto:theodore.sectish@childrens.harvard.edu)) as early as possible, as decisions about these positions are made between November and February. Competitive applicants will be asked to come to Boston for a day of interviews.

### Med-Peds Applicants

The Harvard BWH/BCH Medicine-Pediatrics Residency is located at the Brigham and Women's Hospital and Boston Children's Hospital. Interviews occur in December and January and are independent of pediatric and internal medicine interviews at the two hospitals. More information about the program and how to submit an application [is available](#).

## How To Get Here

### Transportation

Boston Children's Hospital and Boston Medical Center are accessible by car, bus or subway. For those who wish to take public transportation (the MBTA or just "The T"), the Blue line stops at the airport (shuttle buses run from each terminal to the T stop). The [MBTA trip-planning site](#) is particularly useful in choosing which subway trains and/or buses to take. Just enter "Logan Airport" and "Children's Hospital" or "Boston Medical Center" in the boxes where addresses are requested. For those who drive, parking garages are available at each institution.

### Maps

- [Children's Hospital Directions](#)
- [Children's Hospital Buildings](#)
- [Harvard Medical School & Longwood Medical Area Map 1](#) and [Interactive Map 2](#)
- [Boston Medical Center](#)



*MBTA Green Line subway car*

## Where To Stay

- [Hotels near Children's Hospital](#)

The Inn at Longwood next to the hospital (342 Longwood Ave, Boston) and The Marriott Courtyard (40 Webster St, Brookline) offer hospital-discounted rates.

- [Inns and Bed & Breakfasts near Children's Hospital](#)
- [Hotels near Boston Medical Center](#)

## Resident Hosting Service

Many applicants also stay in the homes of friends. In addition, the residents offer a hosting service where they invite applicants to stay in their homes. Many applicants choose to do so as it saves money and offers an excellent opportunity to get to know the program better. The residents who are administering the hosting service will contact applicants directly about this after interview invitations are extended.

## Contacts

### Boston Combined Residency Program in Pediatrics

Email: [bcrp@childrens.harvard.edu](mailto:bcrp@childrens.harvard.edu)

#### Elayne Fournier

Boston Children's Hospital

Tel: (617) 355-8241

Fax: (617) 730-0469

E-mail: [bcrp@childrens.harvard.edu](mailto:bcrp@childrens.harvard.edu)

#### Samuel E. Lux, M.D.

Boston Children's Hospital

Tel: (617) 919-2093

E-mail: [lux@enders.tch.harvard.edu](mailto:lux@enders.tch.harvard.edu)

#### Colin M. Sox, M.D.

Boston Medical Center

Tel: (617) 414-3829

E-mail: [colin.sox@bmc.org](mailto:colin.sox@bmc.org)