



# FORGING MEDICINE'S FUTURE

**DIVISION OF PULMONARY,  
CRITICAL CARE AND SLEEP MEDICINE**



## DEAR COLLEAGUE:

As one of just 18 hospitals named to the **U.S. News & World Report Honor Roll**, University Hospitals Case Medical Center is committed to building upon a legacy of medical discovery that began nearly 150 years ago and continues today.

Specialists in the Division of Pulmonary, Critical Care and Sleep Medicine – many of whom are also faculty at Case Western Reserve University School of Medicine – are forging the future of medicine through a number of programs and initiatives:

- Working closely with oncologists and hematologists at University Hospitals Seidman Cancer Center, using interventional bronchoscopy and clinical management skills to deliver comprehensive respiratory care, diagnosis and treatment of lung cancer and sickle cell disease.

- Oversight of the Beacon Award-winning Medical Intensive Care Unit at UH Case Medical Center, developing promising strategies to improve the care of patients with acute respiratory distress syndrome (ARDS).
- Our fellowship programs are accredited by the Accreditation Council for Graduate Medical Education (ACGME) and supported by National Institutes of Health-funded training grants through Case Western Reserve University School of Medicine.

- Leadership in innovative research and clinical trials aimed at new treatments for sleep apnea, pulmonary hypertension, COPD, pulmonary fibrosis and other lung disorders.

We welcome your feedback on how we can work together to further enhance the lives of patients affected by lung conditions and sleep disorders.



**Robert J. Schilz, DO, PhD**

*Interim Chief, Division of Pulmonary, Critical Care and Sleep Medicine,  
University Hospitals Case Medical Center  
Associate Professor of Medicine,  
Case Western Reserve University School of Medicine*



# Division of Pulmonary, Critical Care and Sleep Medicine

UH Case Medical Center's Division of Pulmonary, Critical Care and Sleep Medicine is a renowned destination for referring physicians and patients seeking the most advanced care and groundbreaking treatments.

A trusted resource for patients across the world, UH Case Medical Center's Division of Pulmonary, Critical Care and Sleep Medicine brings together the country's foremost experts in these disciplines. **Innovative, integrated and individualized clinical care** is offered to patients with lung conditions and sleep disorders.

Through a dedicated team of skilled specialists with access to leading-edge technologies, facilities and research, the division delivers superlative care for the full range of disorders, from management of common conditions to the most advanced treatments and surgeries.

# UH CASE MEDICAL CENTER

Among the nation's leading academic medical centers, UH Case Medical Center is the **primary affiliate of Case Western Reserve University School of Medicine.**

TO HEAL. TO TEACH. TO DISCOVER.

With more than 1,000 registered beds, UH Case Medical Center provides primary, specialty and subspecialty medical and surgical care. Located in the heart of Cleveland's University Circle on a beautiful 35-acre campus, UH Case Medical Center includes general medical, intensive care and surgical units, as well as three major specialty hospitals:

**University Hospitals Seidman Cancer Center**

**University Hospitals MacDonald Women's Hospital**

**University Hospitals Rainbow Babies & Children's Hospital**

Our physicians and researchers – who also serve as faculty at Case Western Reserve University School of Medicine – are leaders in their respective fields, and their ongoing clinical research programs push the boundaries of medical progress.

Our dedication to clinical research and education has played a major role in building UH Case Medical Center's rich legacy of medical innovation, and continues to this day. Coupled with a commitment to implementing the latest therapies and integrating with the most technologically advanced hospitals and community facilities, UH Case Medical Center offers a depth of care and scope of services unmatched by any other medical center in Ohio.

**1,000+**  
registered  
beds

**35**  
acre  
campus

**3**  
major  
specialty  
hospitals



## THE PRIMARY AFFILIATE OF Case Western Reserve University School of Medicine

The commitment to exceptional patient care begins with revolutionary discovery. **University Hospitals Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine**, a national leader in medical research and education, and consistently ranked among the top research medical schools in the country by U.S. News & World Report. Through their faculty appointments at Case Western Reserve University School of Medicine, physicians at UH Case Medical Center are advancing medical care through innovative research and discovery that bring the latest treatment options to patients.

The Division of Pulmonary, Critical Care and Sleep Medicine is built upon a foundation of physician-investigators who specialize in researching, designing and implementing treatments and therapies to improve patients' quality of life.

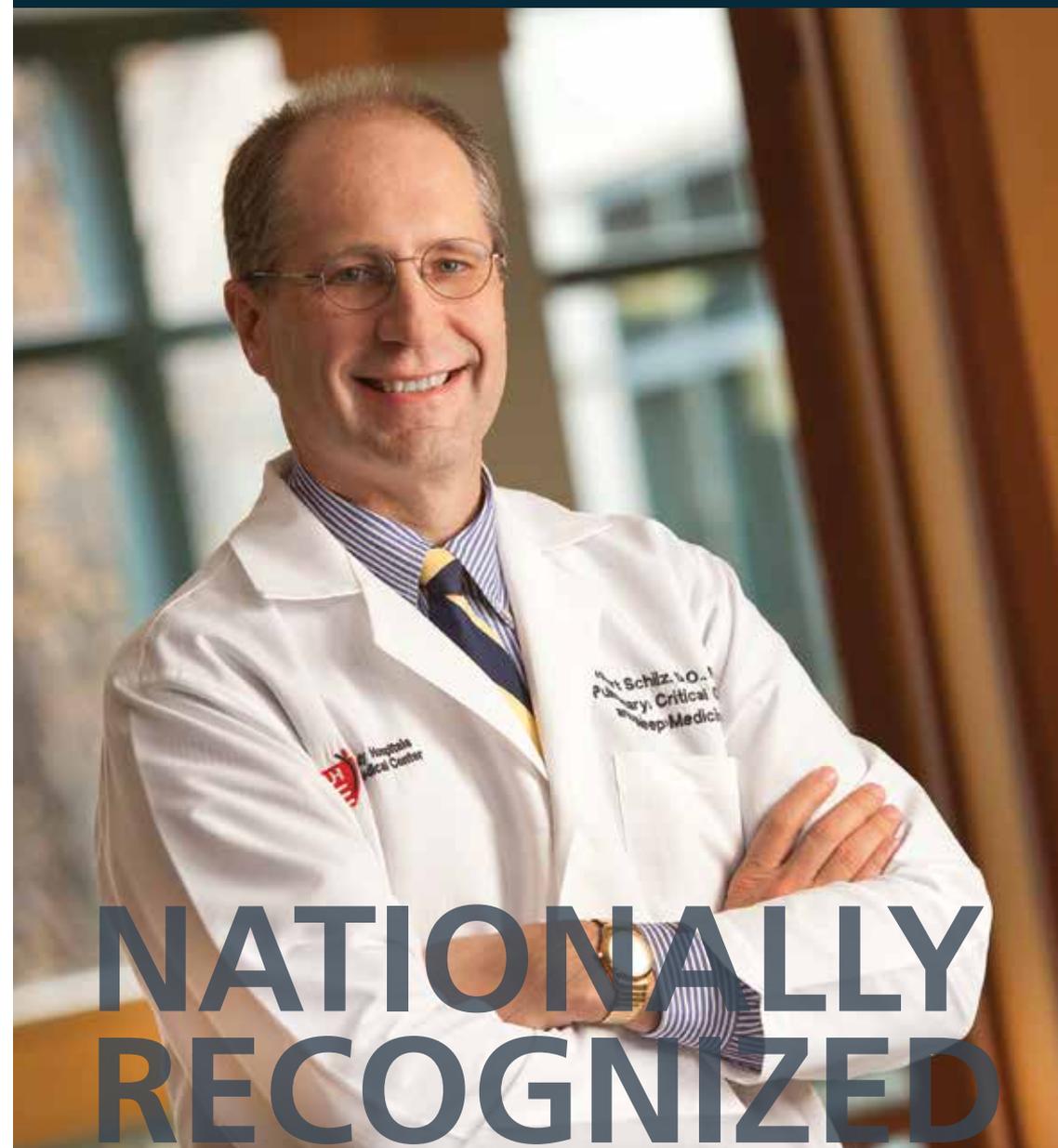
The team is led by **Robert Schilz, DO, PhD**, *Interim Chief, Division of Pulmonary, Critical Care and Sleep Medicine, UH Case Medical Center; and Associate Professor of Medicine, Case Western Reserve University School of Medicine*. Dr. Schilz has participated in clinical and basic research in pulmonary hypertension for more than 15 years, with numerous publications in the areas of pulmonary hypertension, lung transplantation and advanced lung disease. He has served as a committee member for the International Society for Heart Lung Transplantation, the American College of Chest Physicians, the Ohio State Board of Hospitals, and the Scientific Leadership Council for the Pulmonary Hypertension Association. Dr. Schilz co-directs novel collaborations within UH Case Medical Center, including the Dyspnea Center with University Hospitals Harrington Heart & Vascular Institute and the Sickle Cell Clinic with UH Seidman Cancer Center. He serves on the Ohio Hospital Association task force for Multidrug Resistant Organisms and is on the Medical Advisory Board for Cleveland LifeBanc. He was recently elected to the Scientific Leadership Committee for the Pulmonary Hypertension Association and is Chairman of its Education Committee and a committee member for its Centers of Excellence Initiative.

Dr. Schilz leads the section of complex lung disease along with **Mariana Petrozzi, MD**, *Director of the Medical Intensive Care Unit (MICU), UH Case Medical Center; and Assistant Professor of Medicine, Case Western Reserve University School of Medicine*. Dr. Petrozzi and the division's preceding MICU Director developed a step-down unit facilitated by nurse practitioners to care for the chronically critically

ill. In addition, Dr. Schilz leads the development of a comprehensive care destination for patients who no longer need intensive care, but whose recovery is prolonged because of ongoing ventilatory support. The MICU has actively participated in clinical trials since 1994. One, the NIH ARDS Clinical Network, was established to hasten the development of effective therapy for ARDS. The MICU has participated in two published studies and in one ongoing study of sepsis. The National Heart, Lung and Blood Institute (NHLBI) initiated a clinical network, including UH Case Medical Center, to carry out multicenter clinical trials of ARDS.

**Kingman Strohl, MD**, is *Professor of Medicine, Physiology & Biophysics, and General Medical Sciences at Case Western Reserve University School of Medicine; and Director of the Sleep Disorders Program at the Louis Stokes Cleveland VA Medical Center*. Dr. Strohl's research interests are in genetic and nongenetic mechanisms involved in respiratory control relevant to sleep apnea, pharmacologic modification of central apneas and the effects of early life on development of ventilatory control. He has published original work on sleep education, sleepiness in medical training, and clinical decision-making in sleep disorders. For more than 20 years, he has promoted excellence and critical thinking in clinical training in pulmonary and sleep medicine. Dr. Strohl's prominent recognition comes through his research, publications and presentations on sleep apnea, for which he is internationally renowned. His achievements include editing a number of journals and publications, designing data analysis software and participating in national task forces on sleep apnea, sleepiness and driving risk. Dr. Strohl is a member of the American Society for Clinical Investigation, and in 2008, he received the Distinguished Achievement Award from the American Thoracic Society. For the past several years, he has been a visiting professor to Germany, China and Japan.

Dr. Robert Schilz



# NATIONALLY RECOGNIZED EXPERTS

PULMONARY, CRITICAL CARE  
AND SLEEP MEDICINE



Dr. Mariana Petrozzi

## Division of Pulmonary, Critical Care and Sleep Medicine

The Division of Pulmonary, Critical Care and Sleep Medicine at University Hospitals Case Medical Center is setting the standard for care in the diagnosis and treatment of acute and chronic lung diseases, critical care and sleep disorders. Our renowned experts address the complete span of common and rare respiratory diseases including asthma, chronic obstructive pulmonary disease (COPD), interstitial fibrosis and pneumonia, sleep apnea, pulmonary vascular disease, cystic fibrosis (CF), lung cancer, sepsis, acute respiratory distress syndrome (ARDS) and acute lung injury (ALI). With access to advanced technologies, we utilize novel treatments, specializing in modalities such as interventional bronchoscopy and lung transplantation, as well as pioneer new therapies through clinical trials.

In collaboration with colleagues from multiple disciplines, our team determines the best therapeutic solutions for each patient while maintaining recognition as thought leaders in their specific fields. It is our commitment to deliver the most advanced, efficient and cost-effective approach to patient care.

U.S. News & World Report has consistently ranked the division among the top 50 programs in pulmonary medicine for the past six years – significant against a backdrop of more than 2,000 pulmonary programs in the United States. **Dedicated to transforming patient care** at an integrated and individualized level, the division receives high marks for shorter lengths of stay and nationally low mortality rates.

**Colleen Lance, MD,**  
*Clinical Director of the Sleep Program at UH Case Medical Center; and Assistant Professor of Medicine, Case Western Reserve University School of Medicine, has led a number of initiatives at UH Case Medical Center to establish more efficient and effective practices in the treatment of sleep disorders.*

Heart failure patients often have heart arrhythmias, which are strongly linked to sleep-disordered breathing. In addition, these patients frequently have obstructed sleep apnea, as well as central sleep apnea, or Cheyne-Stokes respiration. Continuous positive airway pressure (CPAP) and bi-level positive airway pressure (BiPAP) are generally effective

treatments for obstructed sleep apnea, but not Cheyne-Stokes respiration. If these patients' nighttime breathing problems are not addressed, then it becomes difficult to improve their ejection fraction. Dr. Lance hopes that these patients may benefit from a newer modality of noninvasive ventilation. This machine-based program regulates patients' patterns of breathing. If their sleep-disordered breathing is treated with noninvasive ventilation, then the work load of the heart may be relieved and squeeze function improved. Dr. Lance believes that this therapy may help reduce lengths of stay and readmission rates for heart failure patients.

Common medications given around the time of surgery can cause a markedly increased chance of perioperative complications in patients with sleep apnea or sleep-disordered breathing. Dr. Lance is evaluating data gathered from a program begun two years ago by

anesthesiologists at UH Case Medical Center in which every patient who underwent an outpatient procedure was screened for sleep-disordered breathing. The Stop Bang questionnaire, a validated screening tool measuring factors that impact sleep, such as snoring, daytime tiredness and body mass, is used. If patients screen positive in the preoperative clinic, they are placed on home sleep testing units immediately. If the unit indicates obstructive sleep apnea, they are placed in a sleep lab for treatment or on an auto titrating unit at home prior to surgery. Dr. Lance's evaluation will assess the effect on postoperative complication rates and readmission rates.

There is a strong genetic component to many sleep disorders, including sleep apnea, restless leg syndrome,

periodic limb movement and insomnia. It is not uncommon to find multiple family members who share disorders. Dr. Lance and her counterpart in pediatrics, **Carol Rosen, MD,** *Department of Pediatric Pulmonology, UH Rainbow Babies & Children's Hospital; and Professor of Pediatrics and General Medical Sciences, Case Western Reserve University School of Medicine,* are managing twice-monthly clinics specifically focused on families. Families participate in an interview and meet with pediatric and adult sleep specialists and psychologists to determine if cognitive behavioral therapy or further study in the sleep lab is recommended to address the common disorders within the family.

## New Therapies for Sleep Disorders

Innovative Studies for Heart Patients, Surgical Patients and Families



*Dr. Colleen Lance*



*Dr. Elliott Dasenbrook and Steven Strausbaugh*

# CLINICAL ADVANCES

- **Elliott Dasenbrook, MD**, *Connie and Jim Brown Chair in Pulmonary Survivorship, UH Case Medical Center; and Assistant Professor of Medicine and Pediatrics, Case Western Reserve University School of Medicine, and Steven Strausbaugh, MD*, *Director, Combined Medicine/Pediatrics Residency Program, Adult Primary Ciliary Dyskinesia Program, and Pulmonary, Critical Care and Sleep Medicine Fellowship Program, UH Case Medical Center; and Assistant Professor of Medicine and Pediatrics, Case Western Reserve University School of Medicine*, are co-directors of the Cystic Fibrosis Center, a collaboration of the Division of Pulmonary, Critical Care and Sleep Medicine at UH Case Medical Center, UH Rainbow Babies & Children's Hospital and Case Western Reserve University School of Medicine. The team's continued legacy of innovation and research

has helped to more than triple the national average life expectancy of CF patients – increasing from 11 years in 1970 to more than 38 years today.

- The Sleep Medicine Program, developed by the Division of Pulmonary, Critical Care and Sleep Medicine, has become an Accreditation Council for Graduate Medical Education (ACGME) accredited fellowship, with added strength in research through an NIH Training Award for epidemiology and neurobiology. One focus is on cardiovascular complications of obstructive sleep apnea. The work of **Dr. Kingman Strohl** has focused on the principles and practice of therapy, including the role of genetic predisposition and development of the Inspire™ Upper Airway Stimulation (UAS) therapy.

- The Amyotrophic Lateral Sclerosis (ALS) Program joins specialists from UH Neurological Institute's Neuromuscular Center, rehabilitative services (such as physical therapy, occupational therapy and speech therapy), surgery and pulmonary medicine to optimize patient care and comfort. Developed at Case Western Reserve University School of Medicine, diaphragmatic muscle pacing is now an option in managing respiratory failure in ALS patients. The NeuRx Diaphragm Pacing System® was pioneered at UH Case Medical Center under the direction of **Raymond Onders, MD**, *Director of Adult Minimally Invasive Surgery, UH Case Medical Center; and Professor of Surgery, Case Western Reserve University School of Medicine*, and **Dr. Robert Schilz**. The device, which has been approved by the FDA, helps patients to breathe and speak better and to stave off respiratory complications during the progression of ALS. The device was successfully used to treat the late actor Christopher Reeve in March 2003.

- **Jordan Kazakov, MD**, *Clinical Instructor of Medicine, Case Western Reserve University School of Medicine*, was recruited in 2013 as an interventional pulmonologist. He brings with him state-of-the-art approaches to the diagnosis and treatment of malignant and nonmalignant lung disease including endobronchial and endoscopic ultrasound, rigid bronchoscopy and stent placement. His clinical interests include lung cancer, lung problems in immunocompromised patients, complex central airway disease, pleural disease and critical care. Dr. Kazakov leads research involving Y-stent insertion using a flexible bronchoscopic Seldinger technique in distal tracheal and carinal obstruction, and EBUS guided biopsies of peripheral lung masses.



*Drs. Frank Jacono,  
Richard Silver and  
Thomas Dick*

## NEW CRITERIA FOR EXTUBATION DECISIONS

Highly Individualized Data Provide Another Tool in Making a Crucial Decision

Critical decisions are made in intensive care every day, and one of the most critical is when to remove a patient from the ventilator. Extended periods on mechanical ventilation increase the risks of progressive muscle weakness, ventilator-associated pneumonia, expenditures and mortality. Removal from the ventilator as soon as possible increases positive outcomes, but reintubation, especially when done urgently, can cause trauma in addition to the risks already associated with being on the ventilator.

While protocols exist for determining the ideal time for extubation, the rates of failed extubation rates are generally 10 to 15 percent. **Frank Jacono III, MD**, *Assistant Professor of Medicine, Case Western Reserve University School of Medicine; and Chief of Pulmonary Section, Medical Director of Respiratory Therapy Department and Medical Chair of Cardio-Pulmonary Resuscitation Committee, Louis Stokes Cleveland VA Medical Center*, is studying extubation decisions in order to improve the criteria upon which this critical decision is made.

The Weaning and Variability Evaluation (WAVE) trial focused on the use of variability in heart and breathing rate to predict success and measure outcomes when weaning patients from mechanical ventilation. The study measured the degree and character of breathing patterns and variations over time, including changes in the breathing

rate and size of breaths, on a breath-by-breath basis. Alterations in heart rate, variability and ventilatory patterns during a spontaneous breathing trial – the period of time when patients are allowed to breathe on their own before the decision to extubate is made – were often associated with failed extubation. Work is under way to derive a predictive model that provides added accuracy in predicting successful extubations, a model that may perform better than the standard measure currently used, particularly with high-risk patients.

The first trial is completed and has been submitted for publication. More than 660 patients were enrolled in Canada and the United States. UH Case Medical Center enrolled 42, the most participants in any of the U.S. sites.

Requests for funding for a second trial have been submitted by the primary site in Ottawa, Canada. The second trial would be a validation cohort to prospectively validate the first trial's findings and will take place in the same sites that were involved in the initial trial.

## Expression Signatures of TB-Specific Memory Responses within the Human Lung

A grant was recently awarded by the National Heart, Lung and Blood Institute of the NIH through Case Western Reserve University School of Medicine to examine how immunity to *Mycobacterium tuberculosis*, the cause of TB, is manifest within the human lung. This research is led by **Richard F. Silver, MD**, *Associate Professor of Medicine, Case Western Reserve University School of Medicine*, in collaboration with investigators at Saint Louis University and the Dana Farber Cancer Institute of Harvard University. Specifically, studies will evaluate how *M. tuberculosis*-induced global gene expression of cells obtained from the lung by bronchoalveolar lavage (BAL) differs between uninfected control subjects, individuals with latent tuberculosis infection (LTBI), and subjects who have received the TB vaccine BCG by standard injection into the skin vs. oral administration. Comparison will also be made between responses of BAL cells present in the lung at baseline and those recruited to lung following a unique bronchoscopic challenge protocol using the TB skin-test material purified protein derivative of *M. tuberculosis* (PPD). These studies aim to clarify the basis of the unsatisfactory efficacy of current TB vaccination, and the potential role of route of exposure in optimizing local host immunity to *M. tuberculosis* and other respiratory pathogens.



*Drs. Kingman Strohl  
and Jonathan Baskin*

## Minimally Invasive and Highly Personalized HELP FOR SLEEP APNEA

### INNOVATIVE AND PROMISING DEVICE UNDER FDA REVIEW

A device using electronic stimulation therapy for the treatment for sleep apnea, called Inspire™ Upper Airway Stimulation (UAS) therapy, is currently under review by the FDA. While other, similar devices are in feasibility and safety evaluation mode, this is the first of its kind to be submitted to the FDA for review and consideration for approval.

The origins of the device go back to basic research conducted in the early 1990s by **Dr. Kingman Strohl**. Feasibility studies were published in 1993, but languished until Inspire Medical Group funded a Phase II trial that identified appropriate subjects for participation: those with moderate to severe sleep apnea who have struggled with or cannot tolerate the most common therapies, continuous positive airway pressure (CPAP) or Bilevel positive airway pressure (BiPAP), a body mass index level of less than 32, and an apnea-hypopnea index (AHI) of 20 to 60 per hour. Potential subjects were also evaluated to determine that their airway collapses under anesthesia and were amenable to stimulation effects.

There are three components to the device: an electrode that is placed over the hypoglossal nerve at its approximate end, which preferentially activates the muscles that push the

tongue forward; a pressure sensor placed outside the pleural space of the lung to measure breathing; and a pacemaker-like device positioned in the right axilla, where a heart pacemaker or a vagal stimulator is often placed. The device receives information from the pressure sensor and signals the stimulation of the hypoglossal nerve. Patients use a wind-like, handheld programmer to turn on the device when they go to sleep and turn it off when they wake up. Dr. Strohl's surgical collaborator is **Jonathan Baskin, MD**, *Department of Otolaryngology, UH Case Medical Center, and Assistant Professor of Otolaryngology and Biomedical Engineering, Case Western Reserve University School of Medicine.*

Participation in the Phase II trial was followed by the Stimulation Therapy for Apnea Reduction (STAR) trial two years ago. In this study, 126 participants received therapy using the Inspire™ UAS system.

At 12 months, there was reduction in the Apnea Hypopnea Index and Oxygen Desaturation Index, two scales used to indicate the severity of obstructive sleep apnea. There also were improvements from preimplant to 12 months on sleep quality scales called Epworth Sleepiness Scale and Functional Outcome of Sleep Questionnaire. An 18-month follow-up in seven patients was recently completed by UH Case Medical Center.

A decision by the FDA is anticipated in summer 2014.

UH Case Medical Center's physicians, surgeons and scientists – all members of the faculty of Case Western Reserve University School of Medicine – are leaders in their respective fields, and their ongoing research programs are at the leading edge of medical progress. A strong emphasis on translational, or “bench-to-bedside,” research means that new and innovative treatments and technologies transfer more rapidly from the research laboratory to actual patient care.

# TOMORROW'S CURES TODAY.

## RESPIRATORY RHYTHMOGENESIS: A GENOMIC APPROACH

Led by Dr. Kingman Strohl and funded by the VA Research Service, this study will use recombinant inbred mice strains to increase the genomic understanding of unstable breathing, and uncover genomic mechanisms and pathways underlying ventilatory responses to hypoxia and hypercapnia, in wakefulness and the different stages of sleep.

## ERADICATION OF PERSISTENT MRSA AND PERSISTENT MRSA ERADICATION PROTOCOL, LED BY DR. ELLIOTT DASENBROOK:

Funded by NIH through Case Western Reserve University School of Medicine, these research studies consider whether CF patients and CF animal models with methicillin-resistant staphylococcus aureus (MRSA) in the respiratory tract have lower survival rates than those without the drug-resistant bacteria. Their initial findings, published in the Journal of the American Medical Association, suggested the need for more aggressive treatment of CF patients who are persistently MRSA positive and stressed the importance of following current infection control guidelines to minimize transmission of MRSA.

## PRECLINICAL MODEL SYSTEMS OF NEURAL CONTROL OF BREATHING:

Funded by the VA Research Service, this study focuses on the development of a cohesive set of computational approaches to quantify biologically determined ventilatory pattern variability with an emphasis on using ventilatory pattern analysis as a novel tool for investigating mechanisms responsible for breathing behaviors and providing predictive insight into prognosis and reversible pathophysiology leading to recovery, survival and rehabilitation. This work has future significance in management of acute respiratory distress syndrome, cystic fibrosis, respiratory failure and ventilatory support management.

**ICU OF THE FUTURE:** Ongoing collaboration with the Department of Electrical Engineering and Computer Science at Case Western Reserve University supported by the Ohio Board of Regents and, more recently, a Draper Laboratory University R&D Project to establish an Engineering Laboratory to build the ICU of the Future. This project is part of a national Integrated Medical Environment for Decision Support (IMEDS) consortium intended to optimize the collection, integration, processing and visualization of ICU bedside data to transform patient data into actionable information, improve patient outcomes and reduce health care costs.



The commitment to exceptional patient care begins with revolutionary discovery. University Hospitals Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine, a national leader in medical research and education and consistently ranked among the top research medical schools in the country by U.S. News & World Report. Through their faculty appointments at Case Western Reserve University School of Medicine, physicians at UH Case Medical Center are advancing medical care through innovative research and discovery that bring the latest treatment options to patients.

# RESEARCH

All National Institutes of Health (NIH) funding for basic and clinical research is awarded to the School of Medicine at Case Western Reserve University.

**The Harrington Project for Discovery & Development** is a \$250 million national initiative to accelerate the development of medical breakthroughs by physician-scientists into medicines that benefit patients. It is a unique model that aligns, through mission and structure, nonprofit and for-profit resources into a system for drug development. The Harrington Project thereby addresses a set of major challenges in medicine that have created a development gap for promising discoveries.

**The Harrington Discovery Institute** at University Hospitals Case Medical Center, the nonprofit component of The Harrington Project, enables physician-scientists to translate their clinical insights and research into novel therapies that benefit patients and society. Through an annual competition, the Harrington Discovery Institute selects a group of medical innovators known as Harrington Scholar-Innovators whose projects are funded and actively guided by drug discovery experts toward the clinical realm.

HARRINGTON DISCOVERY INSTITUTE  
AT UNIVERSITY HOSPITALS CASE MEDICAL CENTER

## A CATALYST FOR A NEW MODEL IN DRUG DEVELOPMENT

**2014 SCHOLARS** The 2014 class of Harrington Scholar-Innovators selected by the institute's scientific advisory board are:

**Jayakrishna Ambati, MD**  
*University of Kentucky*

**Darren Carpizo, MD, PhD**  
*Rutgers Cancer Institute of New Jersey*

**Garret FitzGerald, MD**  
*University of Pennsylvania*

**Mark Humayun, MD, PhD**  
*University of Southern California*

**John Kheir, MD**  
*Harvard University*

**Rahul Kohli, MD, PhD**  
*University of Pennsylvania*

**Gavril Pasternak, MD, PhD**  
*Memorial Sloan-Kettering Cancer Center*

**Irina Petrache, MD**  
*Indiana University*

**David Rowitch, MD, PhD**  
*University of California, San Francisco*

**Jean Tang, MD, PhD**  
*Stanford University*

**David Wald, MD, PhD**  
*Case Western Reserve University*

**To learn more, visit [HarringtonDiscovery.org](http://HarringtonDiscovery.org).**



## THE HARRINGTON SCHOLAR-INNOVATOR GRANT PROGRAM: CHANGING THE STATUS QUO

*Larry Schlesinger, MD  
Harrington Scholar-Innovator 2013  
The Ohio State University, Columbus, Ohio  
Tuberculosis*

Dr. Schlesinger, professor and chair of the Department of Microbial Infection and Immunity at The Ohio State University, and his team are developing a two-pronged therapeutic approach to tuberculosis – discovering compounds that attack the TB microbe and also modulate the body's inflammatory response to it.

In becoming part of the Harrington Discovery Institute, Dr. Schlesinger feels that he has connected with a team that understands him as well as his work. "The Harrington grant application specified they were seeking physician-scientists who are creative, passionate and interested in drug development," he says. "They wrote who I am."

The Harrington grant will propel Dr. Schlesinger's work into the next phase, providing for research in animal models, formulation of the drug delivery system and imaging to evaluate the drug's disposition in tissues. At that point, he believes his work will be of great interest to drug companies.

**"We have an enormous opportunity to translate biologic pathways into therapeutics, but it requires a partnership between academic institutions and the drug companies."**

To read more about the 2013 Harrington Scholar-Innovators, visit [HarringtonDiscovery.org/Scholar-Innovator2013](http://HarringtonDiscovery.org/Scholar-Innovator2013).

**To be notified of the next Harrington Scholar-Innovator Grant call for proposals, email [Natalie.Haynes@UHhospitals.org](mailto:Natalie.Haynes@UHhospitals.org).**

**In 1996**, UH created a clinical trials office at what is now UH Case Medical Center. At the time of its creation, the focus and management of clinical trials was managed by a small staff. This team was charged with the fiscal management of a handful of clinical trials, as well as regulatory oversight of human subject protections. By 2000, the office became known as the UH Research Institute.

**From 1996 to 2003**, the clinical research enterprise at the academic medical center continued to expand, resulting in exponential growth of both the staff and the research activity managed. The institute grew into a much broader

support department and became the **Center for Clinical Research and Technology (CCRT)**, which consists of seven offices dedicated to developing a standardized platform ensuring the responsible conduct of research for patients through scientific, regulatory, legal, ethical and fiscal review.

The CCRT now provides infrastructure, programmatic, personnel and administrative support for all research activities performed at UH by UH medical or scientific staff. These medical scientists are national and international leaders in their respective fields and are committed to **identifying standards of excellence** and potential areas for improvement to promote and **facilitate clinical and translational research**.

**By 2013**, the CCRT activities amounted to over \$42 million at UH and \$167 million of UH activity related to the affiliation between UH and Case Western Reserve University School of Medicine. These funds emanate from nearly 1,200 active grants and contracts at UH and nearly 700 additional grants that annually fund the shared faculty of UH and the School of Medicine through nearly 2,300 active human research protocols.

**To learn more about the Center for Clinical Research and Technology directly, visit [UHhospitals.org/Clinical-Research](http://UHhospitals.org/Clinical-Research), call 216-844-5576 or email [ClinicalResearch@UHhospitals.org](mailto:ClinicalResearch@UHhospitals.org).**

## UH Case Medical Center **CENTER FOR CLINICAL RESEARCH AND TECHNOLOGY**

Clinical research has always driven the practice of medicine to new heights and, as such, is deeply embedded within the very mission statement of University Hospitals:

**To Heal. To Teach. To Discover.**

# Clinicians and Scientists at UH Case Medical Center and Case Western Reserve University School of Medicine



## Division of Pulmonary, Critical Care and Sleep Medicine

### Leadership

**Robert J. Schilz, DO, PhD**  
*Interim Chief, Division of Pulmonary, Critical Care and Sleep Medicine  
Associate Professor*

**Colleen G. Lance, MD**  
*Clinical Director, Sleep Program  
Assistant Professor*

**Mariana Petrozzi, MD**  
*Director, Medical Intensive Care Unit  
Assistant Professor*

### Physician Faculty (Adult)

**Elliott Dasenbrook, MD**  
*Assistant Professor*

**Thomas E. Dick, PhD**  
*Professor*

**Pingfu Feng, MD, PhD**  
*Associate Professor*

**Frank Jacono III, MD**  
*Assistant Professor*

**Jordan A. Kazakov, MD**  
*Clinical Instructor*

**Hugo Montenegro, MD**  
*Professor*

**Michael Nochomovitz, MD**  
*Clinical Assistant Professor*

**Mohammed Shatat, MBBS**  
*Senior Instructor*

**Richard Silver, MD**  
*Associate Professor*

**Kingman P. Strohl, MD**  
*Professor*

**Erik van Lunteren, MD**  
*Professor*

**Steven Strausbaugh, MD**  
*Assistant Professor*

Physician Faculty (Pediatric)

**Benjamin Gaston, MD**  
*Division Chief, Pulmonary Diseases, UH Rainbow Babies & Children's Hospital  
Professor*

**James Chmiel, MD**  
*Associate Professor*

**Daniel Craven, MD**  
*Assistant Professor*

**Elliott Dasenbrook, MD**  
*Assistant Professor*

**Pamela B. Davis, MD, PhD**  
*Professor*

**Dorr G. Dearborn, MD, PhD**  
*Professor*

**Meeghan A. Hart, MD**  
*Assistant Professor*

**Michael W. Konstan, MD**  
*Professor*

**Laura Milgram, MD**  
*Associate Professor*

**Ross E. Myers, MD**  
*Assistant Professor*

**Carol L. Rosen, MD**  
*Professor*

**Kristie Ross, MD**  
*Assistant Professor*

**Kimberly A. Spoonhower, MD**  
*Assistant Professor*

**Robert Stern, MD**  
*Professor*

**Steven Strausbaugh, MD**  
*Assistant Professor*

### Physicians in the Community

**John Baron, MD**  
*Clinical Instructor*

**Akhil Bindra, MD**

**Jonathan Castro, MD**

**Anthony DiMarco, MD**  
*Professor*

**Samuel Friedlander, MD**  
*Clinical Assistant Professor*

**Robert Hostoffer Jr., DO**  
*Clinical Associate Professor*

**Harish Kakarala, MD**

**Kent Knauer, MD**  
*Clinical Assistant Professor*

**Ann Marie Leano, MD**

**Andrew Liu, DO, PhD**  
*Clinical Assistant Professor*

**Kar-Ming Lo, MD**

**Lawrence Martin, MD**  
*Clinical Professor*

**Arthur Molinoff, MD**

**Timothy Murray, MD**

**Nizar Nader, MD**

**Michael Passero, MD**

**Jeffrey Renston, MD**  
*Associate Professor*

**David Rosenberg, MD**  
*Clinical Assistant Professor*

**Timothy Taylor, DO**

Physicians receive their academic appointments and their accompanying titles from Case Western Reserve University School of Medicine.

To refer a patient or learn more about  
UH Case Medical Center Division of  
Pulmonary, Critical Care and Sleep Medicine,  
call direct **216-844-3201**, call toll-free  
**1-866-UH4-CARE** (1-866-844-2273)  
or visit **UHhospitals.org**



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