

## 'Silent' Viral Infections Promote Profound Biological Response

Respiratory viruses can be sneaky. National Jewish Health researchers, led by Associate Professor Max Seibold, PhD, examined 161 apparently healthy children and found that 25 of them had respiratory viral infections despite having no clinical symptoms. Although the viruses were causing no visible symptoms, they were driving profound changes in the biology of the children's airways.

Viral infections were associated with altered expression of 8,126 genes. Many of those changes can contribute to asthma exacerbations in susceptible children. Researchers believe this work may help them discover how respiratory viruses cause the vast majority of asthma exacerbations and develop strategies to prevent worsening of asthma in patients with respiratory viruses.

The researchers used a novel technique, called dual RNA-seq, to observe the back-and-forth battle between respiratory viruses and humans. For instance, they saw striking down-regulation of airway cilia genes. Cilia are small hairlike structures in the airways that help push inhaled particles up out of the airways. The striking down-regulation of ciliary genes during viral infection could significantly reduce humans' ability to remove viral particles from the airways.

The study is available on the *Journal of Allergy and Clinical Immunology's* website, [jacionline.org](http://jacionline.org), and at [ow.ly/uoVD30b7ECp](http://ow.ly/uoVD30b7ECp).



A young athlete learns to control her breathing.

## Novel Therapy Helps Athletes Overcome Vocal Cord Dysfunction

A new study published in the journal *Pediatric Pulmonology* shows that a novel, nonsurgical approach to treating vocal cord dysfunction (VCD) can help three out of four adolescent athletes who did not respond to conventional therapy. National Jewish Health *for Kids* Pulmonologist Tod Olin, MD, MSCS, developed a new approach that involves visual biofeedback, training in specific breathing techniques and feedback regarding performance psychology.

With therapeutic laryngoscopy during exercise, Dr. Olin fits patients with a helmet that has a small camera attached to it. The camera is fed through the patient's nose and positioned just above the throat. Once the camera is in place, patients undergo a strenuous workout on a stationary bicycle. Viewing images from the camera, they

can see how their throats respond in real time and learn how to control their breathing.

Dr. Olin tested the approach on 41 adolescent athletes with VCD who had not responded to other interventions. He found that 75 percent of patients who participated in the study perceived improvement in breathing during strenuous exercise, and 85 percent called the approach the most important therapy they had undergone to achieve breathing improvement. The approach also represented the first time many of these athletes were made aware of the psychological aspect of their condition, as well as their ability to manage it.

Reference:

Olin, J. T. et al. (2016), Therapeutic laryngoscopy during exercise: A novel non-surgical therapy for refractory EILO. *Pediatric Pulmonology*, doi:10.1002/ppul.23634.

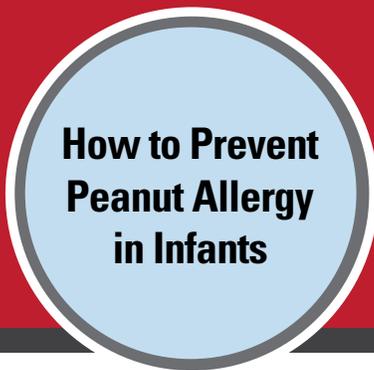
## National Jewish Health at Highlands Ranch Expands Services

National Jewish Health at Highlands Ranch is now offering pediatric pulmonary services on Fridays. Carah Santos, MD, and Jennifer Fish, NP, will see patients from 8 a.m. to 5 p.m. Appointments for pediatric services are available within 48 hours.

The clinic continues to offer pediatric allergy and immunology services, as well as adult pulmonary, cardiac, allergy and immunology services and sleep studies. For detailed information on available services, please visit [njhealth.org/HRanch](http://njhealth.org/HRanch).

To refer a patient, please call **303.703.3646** or visit [njhealth.org/referrals](http://njhealth.org/referrals). For an overnight adult sleep study, please call **303.270.2708**.

## New Guidelines Can Prevent Peanut Allergies



**Children who have significant eczema or other food allergies are at risk for developing a peanut allergy**

Introducing peanut-containing foods to these infants early and safely can reduce the possibility of developing peanut allergy by 81 percent. Talk with your physician before introducing your infant to peanut-containing foods, because allergy testing may be needed, and follow your physician's recommendations.

### New Guidelines: Introducing Peanut-Containing Foods

#### Your Infant Has

#### The Recommendation

#### When to Introduce Peanut Foods

No eczema or food allergy

Introduce peanut-containing foods.

Age-appropriate manner (4-6 months of age) according to family preferences and culture.

Mild to moderate eczema

Introduce peanut-containing foods per physician instruction.

Around 6 months of age and according to family preferences and culture.

Severe eczema, egg allergy or both

Evaluation with allergy testing to determine if peanut should be introduced into your infant's diet and what is the safest way to introduce it.

4 to 6 months in consultation with your pediatrician and/or allergist.



## Advanced Bronchoscopy Delivers Real-Time Imaging, Faster Results

By Akrum Al-Zubaidi, DO

Advanced diagnostic bronchoscopy — which includes endobronchial ultrasound (EBUS), electromagnetic navigation, narrow band imaging and peripheral endobronchial ultrasound — is a relatively new, minimally invasive technique used to diagnose and stage lung cancer, detect infections and identify other diseases that cause nodules and enlarged lymph nodes in the chest.

The National Jewish Health Interventional Pulmonology Program utilizes advanced diagnostic bronchoscopy in addition to a wide spectrum of minimally invasive diagnostic, therapeutic and palliative airway procedures.

Unlike conventional diagnostic procedures, such as mediastinoscopy, advanced diagnostic bronchoscopy does not require an incision. Using a bronchoscope inserted through the mouth and a special endoscope fitted with an ultrasound processor, the pulmonologist guides a fine-gauge aspiration needle through the patient's trachea. The physician can more easily view difficult-to-reach areas and access a greater number of lymph nodes, including smaller ones, for biopsy. Other advanced modalities allow the physician to sample the nodule in addition to lymph nodes.

EBUS, an advanced diagnostic bronchoscopy procedure, provides real-time imaging of the lungs, lymph nodes, airways and blood vessels. Due to EBUS's speed and accuracy, biopsy samples can be immediately examined and additional samples taken if necessary.

EBUS is performed under moderate sedation or general anesthesia. Patients usually return home the same day, creating a less stressful and more comfortable experience.



Akrum Al-Zubaidi, DO

**Akrum Al-Zubaidi, DO**, is an interventional pulmonologist at National Jewish Health. His areas of expertise include pulmonary nodule management and diagnosis using innovative techniques to diagnose and stage cancer, laser therapy to destroy tumors, and stent placement in airways.



## Is Work Making Your Patients Sick?

By Silpa Krefft, MD, MPH

A 37-year-old patient is presenting with a cough, shortness of breath and chest tightness. It looks like a case of bronchitis — but it could be occupational asthma. The most common work-related lung disease in the United States and other developed countries is occupational asthma. It may be caused by exposure to vapors, dusts, gases, fumes and other potentially harmful chemicals in the workplace.

Occupational asthma can occur in smokers and nonsmokers. Patients with a family history of allergies are more likely to develop occupational asthma.

Some chemicals can act as sensitizers and induce allergic reactions in the airways. Once a person has become sensitized, repeat exposures to the chemical can make asthma worse. Other substances, such as dusts, can irritate airways and cause symptoms of cough, shortness of breath, wheezing or chest tightness in individuals with underlying asthma.

Occupational asthma can occur after exposure to compounds that contain isocyanates, which are found in polyurethane products used in painting, foam-blowing/insulation work and other manufacturing processes.

Exposures to high concentrations of irritants such as hydrochloric acid and ammonia also can induce occupational asthma. Health care workers and veterinarians may develop asthma in response to latex.

Despite the number of industries and employees affected by occupational asthma, it often is misdiagnosed. It is important to recognize and control workplace exposures quickly. An allergist/immunologist can help diagnose the condition and work with patients to develop a treatment plan that can prevent permanent changes to the lungs.

The Environmental and Occupational Health Program at National Jewish Health treats a broad range of work-related lung diseases, including occupational asthma.

**Silpa Krefft, MD, MPH**, has clinical and research interests in the diagnosis and treatment of occupational and environmental lung diseases, including deployment-related bronchiolitis and asthma.



Silpa Krefft, MD, MPH

## Biologics Target Severe Conditions at Molecular Level

By Kanao Otsu, MD, MPH

Patients with severe, refractory asthma that is not fully controlled with standard therapies are potential candidates for treatment with biologic agents.

These novel treatment options target the various molecules involved in activation and perpetuation of the inflammatory processes of asthma and immunologic diseases. Depending on the asthma characteristics of the individual patient, utilization of monoclonal antibodies and other cytokine antagonists allow physicians to provide customized, targeted therapy. Utilizing the most appropriate biologic agent for a particular individual is crucial to the efficacy of the drug.

Biologic agents are immunomodulators and ameliorate specific inflammatory response by blocking the effects of the target molecule. Currently available agents include monoclonal antibodies to IgE, an antibody involved in allergic responses, and IL-5, a cytokine central to eosinophilic airway inflammation.

The Division of Allergy, Asthma and Clinical Immunology at National Jewish Health currently uses biologic agents to treat refractory eosinophilic asthma and chronic idiopathic urticaria (hives). We also lead clinical

and nonclinical research in the study and discovery of biologic agents. Previous and ongoing studies use various biologics for treatment of asthma, urticaria, atopic dermatitis and Eosinophilic Granulomatosis Polyangiitis (EPGA). A list of studies currently recruiting participants is available at [njhealth.org/clinicaltrials](http://njhealth.org/clinicaltrials).

**Kanao Otsu, MD, MPH**, is an allergist and immunologist at National Jewish Health. Her research spans basic



Kanao Otsu, MD, MPH

*immunology research of peanut allergy to her current focus of characterizing refractory asthma. Experienced in allergic and immunologic conditions, she is at the forefront of using biologics to treat asthma and hives in patients who have not responded to conventional therapies.*

### Upcoming Professional Education Activities

#### 2017 NTM Lecture Series for Providers

**October 19-20** at Molly Blank Conference Center at National Jewish Health in Denver

Leading medical experts in nontuberculous mycobacterial (NTM) infections will provide updates on research, treatment and prevention. The lecture series is intended for health care professionals who diagnose and treat patients with NTM. Registration and information: [njhealth.org/2017NTMProviders](http://njhealth.org/2017NTMProviders) or contact the Office of Professional Education at National Jewish Health at 303.398.1000 or [proed@njhealth.org](mailto:proed@njhealth.org).

#### NTM Lecture Series for Patients and Families

**October 21** at National Jewish Health in Denver

Patients and their families will spend a day learning from expert faculty about NTM topics relating to medical issues and quality of life. Registration and information: contact the Office of Professional Education at National Jewish Health at 303.398.1000 or [proed@njhealth.org](mailto:proed@njhealth.org).

**See a complete list of events and educational opportunities:**  
[njhealth.org/CME](http://njhealth.org/CME)

## National Jewish Health Welcomes New Division Leaders



Pamela Zeitlin, MD, PhD  
Pediatric Pulmonology

**Pamela Zeitlin, MD, PhD**, has joined National Jewish Health as the chair of the Silverstein Family Department of Pediatrics. In this role, she leads the National Jewish Health *for Kids* pediatrics program, which encompasses care, research and education. Dr. Zeitlin comes to National Jewish Health from Johns Hopkins University School of Medicine, where she served as professor of pediatrics and deputy director for the Institute for Clinical and Translational Research. She was also director of the Eudowood Division of Pediatric Respiratory Sciences and co-director of the Pediatric Cystic Fibrosis Clinical Center. Dr. Zeitlin received her medical degree and doctor of philosophy in cell biology from Yale University. She completed her residency and fellowship at The Johns Hopkins Hospital. Erwin Gelfand, MD, who is retiring from the pediatrics chair position after serving for 29 years, will continue to see patients and conduct research at National Jewish Health.



Kenneth J. Vega, MD  
Gastroenterology

**Kenneth J. Vega, MD**, has joined National Jewish Health as the chief of gastroenterology. Dr. Vega comes to National Jewish Health from the University of Oklahoma Health Sciences Center, where he was professor of medicine and director of research for the Division of Digestive Diseases and Nutrition. Dr. Vega received his medical degree from Cornell Medical College (now Weill Cornell Medical College), completed his internal medicine residency at Boston City Hospital and his fellowship in gastroenterology at Temple University Hospital in Pennsylvania. Dr. Vega is president of the Arkansas Oklahoma Endoscopic Society and is a fellow of the American College of Physicians as well as the American Gastroenterological Association. Additionally, Dr. Vega retired from the U.S. Army National Guard with the rank of Colonel in 2013 following three overseas deployments where he provided medical support for Operations Iraqi Freedom and Enduring Freedom.



Irina Petrache, MD  
Pulmonology

**Irina Petrache, MD**, is a pulmonologist at National Jewish Health and chief of the Division of Pulmonary, Critical Care and Sleep Medicine. Prior to joining National Jewish Health, Dr. Petrache served as the vice chair of research and an associate professor of biochemistry and molecular biology at Indiana University, where she was also the Calvin E. English Chair Investigator. Dr. Petrache was also a professor of medicine and pathology at Johns Hopkins University, where she was the co-director of the Sarcoidosis Clinic. She received her medical degree from the Carol Davila University of Medicine and Pharmacy in Bucharest, Romania. Dr. Petrache completed her residency at St. Luke's Medical Center (now Saint Vincent) at Case Western Reserve University and her fellowships at Johns Hopkins. She has recently served as the associate editor of the American Journal of Physiology-Lung Cellular and Molecular Physiology and the Wolliwick Chair in COPD research at National Jewish Health.

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