

## Innovations in Pulmonology



*Rady Children's - A comprehensive system  
focused solely on children.*



### PEOPLE

## Dr. Rao: Treating a wide range of pulmonary disorders



Aparna Rao, M.D., a board-certified pediatric pulmonologist, works in both the Division of Respiratory Medicine and [Division of Cardiology](#) at Rady Children's Hospital-San Diego. She is also an associate clinical professor of pediatrics at UC San Diego School of Medicine. Her clinical and research interests are in caring for children with congenital heart disease who have pulmonary and airway pathologies.

In addition to treating these children, Dr. Rao sees patients in the multidisciplinary [Aerodigestive Clinic](#) as well as those with common pulmonary diseases, such as asthma, chronic lung disease and chronic cough.

Prior to coming to Rady Children's, Dr. Rao worked at Phoenix Children's Hospital, where she was the section chief of pulmonology, the director of asthma and co-director of the apnea/bronchopulmonary dysplasia program. Previously, she was on the medical staff of Children's Hospital of Wisconsin, where she helped develop its Aerodigestive Center and Tracheal Team Program as well as the Pulmonary Hypertension Program.

Dr. Rao earned her medical degree at Grant Medical College, Bombay, India, and completed her pediatric residency at University of Illinois at Chicago. Fellowship training followed at Children's Hospital of Wisconsin.

Among her honors and awards, Dr. Rao has been named one of the "Best Doctors in America" and "Best Doctors in Phoenix." She has served on the Advisory Editorial Board of Pediatric Cardiology since 2010.



## PROGRAMS

### Clinic tailored to patients with positive airway pressure devices

The Positive Airway Pressure (PAP) Clinic is specifically for children who use devices to support and treat sleep apnea and other types of sleep-disordered breathing. Expert care is provided by a multidisciplinary team including [Rakesh Bhattacharjee, M.D.](#) (pictured below), clinic director and the director of sleep medicine at Rady Children's; [Daniel Lesser, M.D.](#), a pulmonologist with a clinical focus on sleep-disordered breathing; Gretchen Dever, R.R.T.-SDS; and Carrie Aarii, R.N.

PAP therapy may be recommended for children who have had a tonsillectomy but still have symptoms of snoring, pauses and difficulty breathing with sleep. It is indicated for sleep-breathing disorders that include obstructive sleep apnea, central sleep apnea and nocturnal hypoventilation. Many children with disorders that affect the brain, breathing passages, lungs or muscles depend on PAP devices to support their breathing during sleep. Children are asked to use the therapy nightly, and it can take some time to get used to the devices.



The team provides education to families on how these devices work as well as technical assistance and troubleshooting of PAP devices, masks or tubes. Families also receive medical advice on establishing the correct pressure of these devices and psychosocial support as the child gets used to them.

Since opening in November 2017, the clinic has been in high demand; after being held just five times, the team has seen 50 patients.



## INNOVATIONS

### Sleep center using novel device to assess body fat distribution

[The Center for Healthy Sleep](#) offers anthropometric testing to assess body fat distribution in patients with sleep disorders. The testing is performed with a novel Food and Drug Administration-approved device designed by InBody, which utilizes bioelectric impedance to measure different compositions within the body.



innovation  
belongs in every moment



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The center is the only program currently using the device (pictured left). Patients are offered the testing as part of their clinical workup, which takes about a minute to perform, is pain-free and is completely safe.

Traditional methods of assessing body weight and body fat, such as BMI, can be misleading, as they only look at weight related to one's height. The InBody device, along with measuring body weight, evaluates four components: fat, lean body mass, minerals and body water.

Additionally, it uses direct segmental multifrequency bioelectrical impedance analysis to view the body as five cylinders: left arm, right arm, left leg, right leg and the trunk. The scale on the device provides independent measurements for each cylinder to provide accurate measurements for the entire body.

The center's laboratory has confirmed that indices that directly assess body composition, including body fat mass, have stronger associations with sleep-disordered breathing than conventional measures, including weight and body mass index. Moreover, the body composition measures were better able to predict the impact of body position during sleep on many indices of sleep-disordered breathing.

These findings show that conventional measurements of obesity, which address only height and weight, may not reliably predict obstructive sleep apnea. This points to the need for more direct measures of body fat using body composition analysis.

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