Pediatric Flexible Bronchoscopy Course and MediaLab Team Up on 3D Training Model

The Pediatric Flexible Bronchoscopy Course faculty at Cincinnati Children’s introduced some remarkable new technology in their 2019 course, thanks to a collaboration with Cincinnati Children’s MediaLab.

The collaboration resulted from a decision in 2019 to stop using animal models in the training course. Dan Benscoter, DO; John Brewington, MD; and Robert Wood, MD, PhD, pediatric pulmonologists in the Division of Pulmonary Medicine, worked with the MediaLab to develop a 3D model of a child’s airway that would provide a realistic, lifelike training experience.

The MediaLab is part of Cincinnati Children’s Division of Critical Care. The doctors and medical artists who staff the lab have special expertise in generating highly accurate 3D models of human anatomy for educational purposes.

“To have an in-house capability like that was just remarkable,” says Benscoter. “Using composite CT scans from young children, they put together lifelike 3D-rendered models of the upper and lower airway. What made the models so unique was that they were child-sized, and included the airway from the nose through several generations of bronchi. To our knowledge, that does not exist elsewhere.”

Students and instructors at the course were amazed at how lifelike the models were.

“Participants told us they felt that the size and shape, maneuverability, even the tactile sensation of driving the bronchoscope through the airway was impressively realistic,” says Brewington. “We were able to use the model for bronchoscopic intubation, simulated mucus removal and bronchoalveolar lavage, not readily available on any other model that I know about.”

Looking To the Future

The doctors plan to continue using and improving the model for future in-person classes. “We want to have a model that shows anatomic pathology and abnormalities,” says Benscoter. “Eventually, we hope to combine hands-on training with a virtual learning platform, for people who aren’t able to travel here for the course.”

The course was started in 1980 by Dr. Wood, director of the Pulmonary Bronchoscopy Program. Benscoter and Brewington will assume its oversight in the coming year. They agree that adapting to the times and coming up with new ideas is part of Wood’s legacy, and a big reason why the course has been successful.

“Every year brings its own challenges - last year was coming up with a new model, this year was finding a way to educate when we couldn’t have an in-person course due to Covid-19. Dr. Wood has been guiding this course for 40 years and continues to guide it. It wouldn’t be what it is without him.”

1,900+
Bronchoscopies performed in FY20*

2,300
Physicians from more than 85 countries trained in the annual Flexible Bronchoscopy Training Course since 1981

*July 2019 through June 2020