University of Colorado Hospital bolstered its reputation as a leading regional provider of lung care this month with its designation as a Center for Comprehensive Care for pulmonary hypertension.

The successful bid is a market differentiator for UCH, said Lorna Prutzman, RN, MSN, the hospital’s executive director of Cardiac & Vascular Services. She noted that no other hospital in the region has the inpatient services and expertise necessary to receive the PHA accreditation.

“Being first to market is a good thing,” Prutzman said. “We got the accreditation from the PHA on the first go-round, which also showed that we have the organizational commitment from administration and support for the ongoing development of the program.”

Prutzman said she is looking for ways to spread word of the accreditation to community providers throughout the state and region.

The accreditation further cements the foundation of the hospital’s growing pulmonary service line, which includes an ongoing effort to build a pulmonary center of excellence, with specialized care delivered on the ninth-floor Pulmonary Unit in the AIP. The Pulmonary Hypertension Program is part of the multidisciplinary Pulmonary Vascular Disease Center, directed by Bull. It launched in the fall of 2012, bringing together an array of specialists treating a broad range of conditions affecting the lungs and heart, including pulmonary embolism and hereditary hemorrhagic telangiectasia (HHT), the latter treated in a clinic co-directed by Brian Graham, MD, and Jan Durham, MD.

With the approval, UCH becomes the first Center for Comprehensive Care in the Rocky Mountain region, said Badesch, who directs the hospital’s Pulmonary Hypertension Program.

The Pulmonary Hypertension Association (PHA) notified the hospital and the University of Colorado School of Medicine of the accreditation in a Jan. 12 letter to program leaders Todd Bull, MD; David Badesch, MD; and Robin Hohsfield, RN.

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multidisciplinary support (see box) necessary to care for patients with pulmonary hypertension, a relatively rare, incurable disease that restricts the flow of blood to the lungs and frequently leads to right-side heart failure.

Managing meds. Today, there are 13 approved treatments, Badesch said, including oral medications not available until recently. “We’ve participated in the development of nearly all of them,” he said. “We treat patients with the drugs that we’ve helped to develop.”

In fact, the proliferation of medications was one of the reasons the PHA decided to launch the accreditation program, Badesch said. “The risk is that these new treatments could be used inappropriately without a complete evaluation and workup of the patient,” he said. This adds unnecessary expense to medical care but even more importantly can harm patients, he added.

Hohsfield, who is one of the program’s full-time nurses, works extensively with pulmonary hypertension patients in the outpatient clinic, helps to educate inpatient nurses about recognizing and treating the disease, and works in the community to raise awareness of it. She agreed that the availability of additional medication choices is a double-edged sword.

The surveyors also considered the program’s case volume, range of services and therapies, and expertise in managing the medications used to treat varieties of pulmonary hypertension, Badesch said.

He cited several factors, echoed by the surveyors, that distinguish the program. “The remarkable efforts of the team of nurses, a nurse practitioner, research coordinators, an administrative assistant, and a volunteer, all working closely with others from a variety of departments, create the culture of quality and excellence noted by the reviewers. It is truly a team effort,” he said.

The program is one of the best-established in the country, as evidenced by the roughly 1,200 patients it follows in the REVEAL registry, a seven-year study that created a database of individuals diagnosed with pulmonary hypertension. The number of UCH patients in the database is the second-largest in the nation, Badesch said.

The hospital has also long been a leader in clinical and translational research, tracing back to 1995, when epoprostenol sodium (trade name Flolan) became the first FDA-approved treatment for the disease. Many of the sentinel studies describing the pathology and pathobiology of pulmonary hypertension and pulmonary vascular disease originated with the CU School of Medicine, Bull added.

She noted, for example, that some patients have underlying conditions, such as left-sided heart dysfunction and sleep apnea, that providers should address before putting them on medications to treat their pulmonary hypertension. The proper approach is to care for those conditions first, appropriately diagnose the cause of the pulmonary hypertension, evaluate the patient’s condition, and then decide what, if any, pulmonary hypertension medication is warranted.
**Setting the stage.** Like some other diseases, pulmonary hypertension is actually many maladies, Hohsfield said, another complicating factor in treatment decisions. The World Health Organization (WHO) gives it **five groups** based on its underlying cause. The proper treatment depends on an accurate classification, Hohsfield said. For example, idiopathic pulmonary arterial hypertension, which has no known cause, is part of Group 1 and can be treated with a variety of medications designed to ease constriction of the pulmonary artery. Group 2, by contrast, encompasses pulmonary hypertension caused by left-sided heart disease. The appropriate approach for these patients is to treat the underlying condition, such as with surgery to repair a diseased valve. Chronic thromboembolic pulmonary hypertension (Group 4) could be treated either medically to relax the pulmonary arteries or surgically to remove clots that obstruct blood flow through the pulmonary artery to the lungs.

**Educational aims.** Many pulmonary hypertension patients will rely on infused medications for the rest of their lives, emphasizing the importance of education, Hohsfield said. The drugs must be carefully titrated based on the patient’s weight and symptoms, and patients must learn how to mix the medications at home.

Like heart failure patients, people with pulmonary hypertension are often admitted to the hospital with a variety of symptoms, although the majority are concentrated on the ninth-floor Pulmonary Unit for specialized care. Hohsfield helps with the hands-on training for nurses so they are familiar with the signs and symptoms of the disease and learn how to use the infusion pumps, spicing up the classroom work with her own version of a pulmonary hypertension-themed Jeopardy game.

Hohsfield also attends pulmonary hypertension patient support groups throughout Colorado and sometimes outside the state, providing information on dealing with medical emergencies, sticking to fluid and sodium restrictions, avoiding infections, handling insurance, and understanding the varieties of the disease and the drugs used to treat them.

It’s work that underscores the importance of the hospital’s multifaceted approach to dealing with a life-limiting and often poorly understood disease, Hohsfield said.

“Patients need the support of their families to live with this chronic condition,” she said. “We have experts here who can help them in making the best decisions.”

While Badesch clearly is proud of the accomplishments of the team, he emphasized that the PHA accreditation does not isolate the hospital from community providers. Indeed, the PHA model aims to develop regional centers for pulmonary hypertension treatment that feed more complex cases to the Centers for Comprehensive Care.

“The best model of care is a collaborative relationship between the centers and the referring physicians,” Badesch said. “The community provider remains familiar with the patients and continues to participate in their ongoing care.”

“The program functions due to the hard work and expertise of all the participants, including physicians, nurses, pharmacists, respiratory therapists, and ancillary support staff,” Bull concluded. “While I am proud of what has been accomplished, I am even more excited to see what is to come.”

**Deep Team**

A strong multidisciplinary team is vital to the care of pulmonary hypertension patients. The players include:

- Pulmonology
- Cardiology
- Rheumatology (to treat scleroderma-associated pulmonary hypertension)
- Intervention radiology
- Cardiothoracic surgery
- Anesthesia
- Hematology
- Respiratory therapy
- Pharmacy
- Nursing