

October 16, 2013 | By Jackie Carr

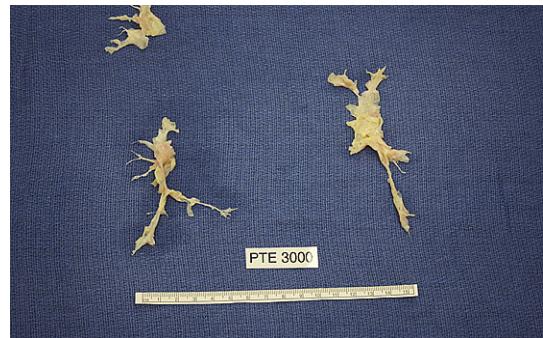
## 3,000th Lifesaving Heart & Lung Surgery at UC San Diego Health System

### Lowest Mortality Worldwide, Most Patients Treated, Heart-Stopping Procedure

Surgeons at UC San Diego Health System have performed their 3,000th pulmonary thromboendarterectomy (PTE), a lifesaving surgery to clear the lung's arteries of scar-like tissue that robs patients of their ability to breathe. During the extraordinary eight to ten hour surgery, the patient is put into a form of suspended animation in which the heart and blood circulation is completely stopped and the brain ceases activity while surgeons clear the pulmonary arteries of disease.

"Patients arrive at UC San Diego Sulpizio Cardiovascular Center from all over the world seeking this safe, highly specialized surgery. Some patients walk in unaided while others arrive by wheelchair or air ambulance," said Nick Kim, MD, pulmonologist and director of pulmonary vascular medicine at UC San Diego Health System. "They all share a common burden: breathlessness. The clots cause chronic thromboembolic pulmonary hypertension, which not only leads to shortness of breath, but in most cases, progression to end-stage heart failure, and death, if not effectively treated."

The surgery is a feat for the patient and the surgeon. In order for the clots to be removed, the surgeon must be able to see clearly into the lung's tiny arteries. This requires operating without any blood present. To achieve this environment, the patient's body is cooled and the blood is completely drained while the patient is on a heart-lung machine. The bypass machine is then stopped for 20 minutes while the surgeon races against the clock to remove the blockages. During this time, both heart and brain wave monitors are flat lined.



*UC San Diego Health System has performed the most PTE procedures globally. The program the lowest known postoperative mortality rate worldwide.*

Using sophisticated techniques and special long, slender instruments, the surgeon rapidly dissects out the chronic clots without perforating the paper-thin artery wall. The clots look like white scar tissue, which when arranged on a surgical table takes the shape of the intricate inner branches of the lung's arteries.

"With a multidisciplinary team, we have developed a comprehensive program that cares for patients from diagnosis through treatment," said Michael Madani, MD, cardiac surgeon, clinical chief of cardiothoracic surgery, and director of UC San Diego Sulpizio Cardiovascular Center - Surgery. "UC San Diego is able to offer this procedure to almost all patients suffering from chronic thromboembolic pulmonary hypertension while providing the best possible outcomes. It is deeply gratifying to cure these patients and to see them go home—free to breathe, free to enjoy life."

UC San Diego Health System has performed more PTE procedures than any other institution in the world. For the past two years, the program has reported a mortality rate of less than one percent – the lowest known postoperative mortality rate worldwide. The procedure can reverse heart failure and is considered the most effective way to treat chronic thromboembolic pulmonary hypertension (CTEPH), better than any medical therapy or lung transplantation.

The PTE program was established in 1970 by Kenneth Moser, MD who pioneered the diagnosis and treatment of CTEPH. Together with Stuart Jamieson, MB, FRCS, Distinguished Professor of Surgery and chief of cardiothoracic surgery at the UC San Diego School of Medicine, they advanced the field and UC San Diego's reputation globally in the treatment of this debilitating condition. Jamieson, the international authority on the surgical treatment of pulmonary thromboendarterectomy, is the surgical director of the UC San Diego PTE program. Under his leadership, the UC San Diego PTE program has mentored and trained surgeons globally who now perform this procedure in their home countries.

The UC San Diego PTE program is the first program to be nationally designated as a Center of Excellence by the American College of Chest Physicians. The program represents the extraordinary efforts of a team of physicians, surgeons, anesthesiologists, nurses, respiratory therapists and social workers who combine their expertise and passion into a world-class program. Throughout the year, the team receives emails, letters and text messages from patients who celebrate the anniversary of their surgery. With a new ability to breathe, some patients declare their surgery date their new birthday.

CTEPH is often misdiagnosed or unrecognized because the primary symptom – shortness of breath – is non-specific. Patients are often incorrectly treated for asthma or COPD. It has been reported that as high as 3.8 percent of individuals with first-time pulmonary embolism may develop CTEPH. This suggests there may be thousands of new cases of CTEPH in the United States annually. Improving awareness of CTEPH may lead to more patients being cured of this life threatening condition.

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