Making Progress: Advances in Heart & Lung Procedures

Cardiothoracic surgeons with the NMMC Heart Institute and Advanced Lung Center lead the region in state-of-the-art procedures, including:

For the Heart:

- Mini-valve surgery—Faulty mitral and aortic valves can now be repaired or replaced through a three-inch incision. These patients have fewer complications, decreased blood loss and a quicker recovery.
- Homograft valve— Surgeons can replace a person's diseased aortic or pulmonic valve with a donated human heart valve.
- Minimally invasive vein harvesting—Using a minimally invasive procedure to harvest veins from the legs for surgery expedites patient recovery, reduces discomfort and decreases blood loss.
- Transmyocardial revascularation (TMR)—For some patients, traditional surgery for coronary artery revascularization is not optimal because of diffuse coronary disease or small arteries. In TMR, surgeons create small channels through the heart muscle to supplement myocardial oxygenation. TMR can be performed alone or in conjunction with heart bypass surgery.
- Maze procedure—Surgeons can restore normal heart rhythm using an innovative, pen-like device to 'draw' over the targeted tissue using radiofrequency energy to disrupt the cells causing troublesome electrical activity in the heart. This procedure is much easier on the patient than the traditional maze procedure that involved cutting and suturing the heart.
- Surgical anterior ventricular restoration—The SAVR procedure changes the geometry of the heart. Surgeons make the heart smaller and more efficient by remodeling part of the anterior wall. SAVR can be performed in conjunction with bypass or valve surgery.

For the Lungs:

- Radiofrequency Ablation—One of the most promising alternatives to surgical removal of lung tumors is eliminating the tumor cells using heat, an outpatient procedure that is much less invasive than open surgery. Guided primarily by computed tomography

(CT) scanning, a small needle electrode is inserted through the skin and directly into the tumor tissue. The radiofrequency energy causes the tissues around the needle electrode to heat up, killing nearby cancer cells and reducing the risk of bleeding.

- Pneumonectomy (or pneumectomy)—The most common cause for removing all or part of a lung lobe is lung cancer, although it may be used for other lung diseases.
- Thorascopic lung resection—Complex lung resections, such as removal of a lobe or even the entire lung, are possible through three incisions one centimeter long and an additional four-centimeter incision. By not removing or spreading ribs, and with such small incisions, patients recover much more quickly and with less pain.