As part of our commitment to university quality health care, The University of Toledo Medical Center has opened a multidisciplinary Hybrid Operating Room and on the 10th of December the very first case was performed in this state-of-the-art facility. The Hybrid Operating Room is the latest advance on the road to bridging traditional operating room capabilities with the latest and most advanced imaging technology. Such a setting permits physicians to perform both traditional surgical cases as well as the most complex endovascular, minimally invasive procedures in the same operating room.

The physicians at UTMC have been leaders in the endovascular arena and have amassed a remarkable experience with endovascular technology. The imaging systems of the Hybrid Operating Room will provide surgeons with additional sophisticated technology to allow them to move to the “next level” of advanced care in this rapidly evolving field. Combining the 2D and 3D fluoroscopic imaging with CT scan capabilities, will facilitate an unprecedented level of surgical precision and accuracy, obviating the need for other imaging modalities. This decreases radiation exposure and makes the most complex endovascular procedures more efficacious and efficient, improving patient safety and comfort.

Dr. Munier Nazzal, Chief of Vascular Surgery, said, “This new technology of the Hybrid Room is nothing short of being a surgeon’s dream. It is a technology that will position us well for future advances in vascular surgery and will offer patients in northwest Ohio and southeast Michigan access to the latest state of the art cardiovascular care without the need to travel outside of our community. We are now able to provide cardiovascular services that in the past required visiting University of Michigan or Ohio State.”

The Hybrid Operating Room at UTMC measures 900 square feet. It is equipped with multiple high definition flat screen monitors allowing multiple members of the operating team easy access to the surgical field allowing collegial input and collaboration. In keeping with the academic and educational missions of UTMC, to advance clinical research and train the next generation of cardiovascular specialists, the Hybrid Operating Room has multiple high resolution cameras that can zoom in on the surgical field providing long and short distance transmission to anywhere in the world for the purpose of surgical education, communication and consultation.

As the vascular surgery team at UTMC strives to provide your patients the most up to date cardiovascular care, whether it be the routine or the most complex, the Hybrid Operating Room will facilitate that mission by providing a setting that will allow a giant leap into the future of endovascular and minimally invasive vascular surgery procedures.

In addition to vascular surgery, the Hybrid Operating Room will provide the appropriate setting to facilitate advanced cardiovascular procedures. The room will facilitate percutaneous valve replacement as well as “hybrid” myocardial revascularization procedures whereby the patient undergoes a simultaneous robotic mediated coronary bypass surgery as well as percutaneous coronary intervention.

The multimillion-dollar hybrid room is an attestation to the commitment of both the UTMC administration and physicians to providing the best university-quality care for our patients.
The University of Toledo Medical Center was named one of the nation’s 50 Top Cardiovascular Hospitals by Truven Health Analytics

The only northwest Ohio hospital honored, UTMC joins institutions such as the Mayo Clinic and the University of California San Diego Medical Center for the 14th annual survey, which was first published by Modern Healthcare.

“This wonderful honor is a tribute to the physicians, nurses and clinicians who work every day to ensure UTMC remains on the leading edge of heart and cardiovascular treatment,” said Dr. Jeffrey P. Gold, chancellor and executive vice president for biosciences and health affairs, and dean of the College of Medicine and Life Sciences.

“If you review the list of the Top 50 Cardiovascular Hospitals, you quickly see there are entire states and regions of the country where patients don’t have access to one of the top 50 cardiovascular care hospitals,” Gold said. “Those living in northwest Ohio can be proud that at UTMC, our region’s patients get the most advanced heart and cardiovascular care available.”

In its study, Truven Health Analytics used data from 2010, 2011 and 2012 from a variety of Medicare and Centers for Medicare and Medicaid data sets and identified the 50 Top Cardiovascular Hospitals as having:

- Better risk-adjusted survival rates;
- Fewer complications;
- Fewer patients readmitted to the hospital within 30 days;
- Shorter hospital stays; and
- Lower costs.

“Patients have for a number of years increasingly looked to the UT Medical Center when it comes to heart and cardiovascular care,” said Norma Tomlinson, acting executive director of UTMC. “As an academic medical center, it is our obligation and our responsibility to ensure we are setting the bar for healthcare in this community, and we are proud to carry out that effort every day.”

Tomlinson pointed out that UTMC is the only hospital in northwest Ohio implanting left ventricular assist devices for those with congestive heart failure and has one of the fastest door-to-balloon times for patients arriving at UTMC during a heart attack. The latter metric measures how fast hospitals are able to reopen a blocked artery to restore blood flow.

In 2009, UTMC opened its Heart and Vascular Center, serving as the community’s first integrated location for patient care, education and translational research in cardiac and vascular diseases.

Since that time, UTMC researchers, physicians and patients have led and participated in numerous studies and clinical trials to advance cardiovascular care.

ECMO (ExtraCorporeal Membrane Oxygenation)

by Dr. Mark Bonnell, Assistant Professor of Surgery Division of Cardiotoracic Surgery

The University of Toledo Medical Center offers ECMO (ExtraCorporeal Membrane Oxygenation) for patients with ARDS, or sudden cardiopulmonary collapse. This is essentially a heart-lung machine that has been adapted to be used safely for days to weeks. It has become the standard of care for isolated acute respiratory failure from pneumonia, trauma or other causes. New cannula technology allows us to place patients on ECMO with single-site access with a double lumen cannula that directs the oxygenated blood across the tricuspid valve to improve efficiency (Figure 1).

Flu season is upon us and predicted to be one of the worst in many years. Annually, nearly 120,000 people are hospitalized and nearly 40,000 die from influenza according to the CDC. Locally, Ohio is especially hard hit already this year (Figure 2).

Influenza virus has a variable clinical presentation ranging from mild “flu-like” illness to severe lung injury and ARDS. Using conventional ventilation, ARDS from influenza appears to have a high mortality than ARDS from other causes (77 percent versus 68 percent). However, during the 2009 H1N1 outbreak, ECMO was used for hundreds of patients in the U.S. and abroad with very promising results. A study published by the Australia and New Zealand ECMO investigators reported a 71 percent survival to hospital discharge in the 68 patients they treated with ECMO. Early intervention is key, with US and international survival of 75 percent if ECMO was begun during the first week of mechanical ventilation versus 30 percent if begun after seven days.

Candidacy for ECMO is guided by criteria from the CESAR trial which were adults 18-65, Murray score >3 or uncompensated hypercarbia with a pH of < 7.20. The following website has a useful calculator for the Murray score: http://cesar.lshtm.ac.uk/murrayscorecalculator.htm

Similarly, patients in cardiogenic shock with myocarditis, post-partum cardiomyopathy, post MI or post arrest can be rapidly and fully supported with ECMO until they either recover or receive a VAD with survival rates exceeding 70 percent.

ECMO has also been used with increased frequency for cardiopulmonary resuscitation (E-CPR) over the past 20 years. Outcomes for conventional CPR for in-hospital arrests from the National Registry for Cardiopulmonary Resuscitation are 17 percent survival to hospital discharge. A report by Thiagarajan et al in 2007 looked at 295 patients using E-CPR from 1992-2007. They reported an overall survival of 27 percent. Smaller single institution studies have reported survival rates up to 48 percent. UTMC has implemented an E-CPR program as part of our resuscitation arsenal.

UTMC has a specialized team of perfusionists, nurses, and physicians with many years of ECMO experience and fellowship training in ECMO at the University of Michigan. Drs. Fleisch, Schwann and Bonnell direct the program and are happy to take questions or referrals and can be contacted by calling 419.383.6320.
A number of studies published within the last several months have reasserted the beneficial role of surgical myocardial revascularization in the treatment of coronary artery disease (CAD). Coronary artery disease remains a common and formidable problem. Despite a better understanding of its pathophysiology its treatment has been controversial and frequently contentious among cardiologists and cardiac surgeons. The perceived benefits of the competing therapies (coronary artery bypass grafting (CABG) and percutaneous coronary intervention (PCI)) were usually based on subjective prejudices rather than evidence based clinical research. The three new studies (The ASCERT Trial, The FREEDOM Trial and The SYNTAX Trial) reflect the current emphasis on comparative effectiveness research aimed to identify the ideal therapy for specific cohorts of patients with CAD. The clear identification of discreet groups of patients who document increased survival with CABG and an increased reliance on a “heart team” comprised of cardiologists and cardiac surgeons collaboratively recommending the most appropriate therapy, will hopefully result in better outcomes and decreased costs.

**THE ASCERT Trial**
(The American College of Cardiology Foundation (ACCF) and The Society of Thoracic Surgeons (STS) Database Collaboration on the Comparative Effectiveness of Revascularization Strategies.)

This was a retrospective analysis of almost two million patients undergoing PCI or CABG between 2004 and 2007 at 644 institutions throughout the United States participating in both the ACCF database (CathPCI Registry) and the STS Adult Cardiac Surgery Database (ACD) with long term follow up obtained from the claims records of the Centers for Medicare and Medicaid Services (CMS). The CathPCI Registry and the ACD were linked to CMS claims files by probabilistic matching, thus circumventing the need for universal patient identifiers. The primary end point was all cause mortality, which was abstracted from the CMS claims form data. Inverse probability weighting that was based on the propensity score was then used as the primary tool to adjust for differences between the two treatment groups. The follow-up time was relatively short and ranged from one to five years (average follow-up: overall, 2.72 years).

The results showed identical mortality rates at one year (6.2 percent in the CABG group as compared with 6.6 percent in the PCI group) with a clear statistically significant survival benefit in favor of CABG thereafter through year four. The adjusted four-year mortality was 16.4 percent in the CABG group and 20.8 percent in the PCI group (risk ratio, 0.79; 95 percent CI, 0.76 to 0.82). The 4-year risk ratios showed a benefit of CABG across subgroups defined according to sex, age, presence or absence of diabetes, body-mass index, presence or absence of chronic lung disease, ejection fraction, and glomerular filtration rate.