



The Ohio State University Medical Center

# update

*Creating the Future of Medicine to Improve People's Lives*

## Primary Care Supports Personalized Medicine

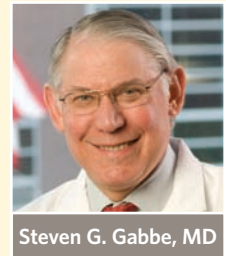
**A**mong the attributes that drew me back to Ohio State is our academic medical center's strong commitment to personalized health care - the integrated practice of medicine and patient support based on an individual's unique biology, behavior and environment.

Sweeping advances in medicine have been realized since the completion of the Human Genome Project in 2003. Our medical center is building on these findings and helping to create the future of medicine through research that seeks to understand how an individual's genetic makeup can not only predict which diseases someone is likely to get, but also how that person will react to certain therapies.

As I have always stressed with my students and trainees, it is extremely important that our clinical skills include getting to know our patients and how they live - their lifestyles and social situations. I know that this type of relationship-building has long been enjoyed by primary care and family medicine physicians, giving them a deep understanding of what personalized health care is about.

I hope you will agree that there is tremendous power in customizing treatments and therapies for individual patients based on their unique genetic makeup, lifestyle choices and social situation. I believe that personalized health care is preventive, predictive, participatory and pre-emptive - as I've experienced in my life, having successfully managed my own diabetes, which I diagnosed in my third year of medical school.

Another aspect of our medical center that drew me back is its commitment to patient satisfaction and quality outcomes, as well as the opportunity to collaborate with you as I work with staff and medical faculty here to move this institution closer to becoming a top-20 academic medical center, a top-10 cancer institute and a leading college of medicine. Please don't hesitate to share your ideas and concerns with me.

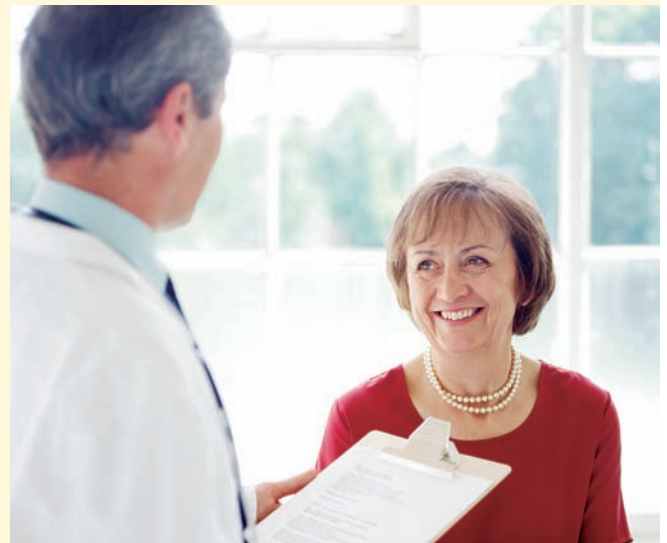


Steven G. Gabbe, MD

### **Steven G. Gabbe, MD**

Chief Executive Officer

The Ohio State University Medical Center



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November 2008

## Ohio State's High Risk OB/Cardiology Team: A Heartfelt Birth Story

Most babies are born in hospital obstetrical units, while some are born at home and a rare few in taxicabs. But Lin Zhang, a 36-year-old Chinese national who came to the United States with her Ohio State University graduate student husband, delivered their baby at Ohio State's Richard M. Ross Heart Hospital. Zhang, who has a congenital heart defect that causes severe pulmonary hypertension, is grateful she was able to deliver at a place where her condition could be continuously monitored by heart specialists.



"In a normal pregnancy, the body undergoes many changes, but when a mother has cardiac problems both she and her unborn child can be at great risk," says David Colombo, MD, a maternal fetal medicine specialist who, along with cardiologists, pediatric cardiologists, obstetrical anesthesia experts and other maternal fetal medicine specialists, is a member of the High Risk OB/Cardiology team at Ohio State that safely delivered Mrs. Zhang's baby.

"We developed our multidisciplinary, collaborative approach nearly five years ago in response to the grim statistics seen across the country in outcomes for certain types of heart disease that pose the highest risk for pregnancy and delivery," says team member Curt Daniels, MD, a pulmonary hypertension expert who directs the Adolescent and Adult Congenital Heart Disease Program. "As little as 20 years ago, only about 20 percent of these women would have survived; fortunately, today it's more like 70 percent, and we are increasingly seeing them in our practice."

Since its inception, the program has safely delivered babies for more than 250 patients who fall into one of two groups: those who are referred to the program prior to conception and those who arrive already pregnant.

"It is more advantageous when a patient consults prior to conception, as we are able to evaluate her unique situation and conduct screening tests that may involve radiation. In most cases, we are able to perform repair procedures – such as valve replacement – that subsequently reduce the mother's risk at birth," Daniels adds.

Colombo and Daniels agree that, for a patient who is already pregnant, her safety and that of her infant is greatly enhanced by the presence in the delivery room of a high-risk obstetrical anesthesiologist such as Mona Halim-Armanios, MD, who acknowledges that her task is compounded by anatomical anomalies among this unique patient group.

"Although many of our patients have had a complete correction of their anatomy, some may have had only partial correction," Halim-Armanios says. "It is still not normal, which presents challenges requiring special attention. Our close communication with the cardiologists and the high-risk obstetricians has allowed us better understanding and better planning. Pregnancy itself poses unique additional challenges to the abnormal heart, and the anesthetic technique itself is another added challenge.

"Often," she adds, "we see mothers with heart lesions that will not allow them to tolerate an epidural in the normal fashion. We have to be precise in dosing, in managing fluids to avoid lung edema, and through appropriate monitoring as well."

**To refer patients to Ohio State's High Risk OB/Cardiology Program, call (614) 293-0570.**



David Colombo, MD



Curt Daniels, MD



## news briefs

### Bariatric Surgery Program Offers Full Weight- Management Services

Designated as a Center of Excellence by the American Society for Metabolic and Bariatric Surgery, the Bariatric Surgery Program at Ohio State's Medical Center offers comprehensive surgical weight-loss options for clinically severe obesity.



Bradley Needleman, MD

"Obesity contributes to a number of disease states, including heart disease, diabetes and cancer, as well as chronic conditions such as hypertension and hyperlipidemia," says Bradley Needleman, MD, program director. "Studies have shown positive effects, especially for patients suffering from type 2 diabetes - we

are seeing dramatic improvement and often complete remission within days of surgery, allowing patients to be weaned away from insulin and other diabetes medications." Primary care physicians are invited to refer clinically obese patients who have been unable to control weight through diet and exercise to the program for a consultation.

**Services include:** Roux-en-Y gastric bypass surgery; lap-band surgery; preoperative physical assessments to evaluate patient appropriateness for weight-loss surgery; nutrition assessments; consultations with surgeons, exercise physiologists, nurse practitioners and dietitians; psychiatric evaluation; lifestyle education and preparation; precertification with insurers; postoperative follow-up and support groups. All services except surgery and psychiatric evaluation are

offered at the Martha Morehouse Medical Plaza, 4th Floor Tower, 2050 Kenny Road, Columbus. Free information sessions are held monthly; a program overview is on the Medical Center Web site.

**For questions or referral information, call Lori Lycans at (614) 293-7912 or e-mail her at [lori.lycans@osumc.edu](mailto:lori.lycans@osumc.edu).**

### Infectious Diseases Clinic Expands Availability

The recent recruitment of new subspecialists and a nurse practitioner has enhanced the ability of the Infectious Diseases Clinic at Ohio State's Medical Center to see patients and provide timely outpatient consultative services to



Larry Schlesinger, MD

referring physicians. "Our faculty includes nationally recognized experts in all areas of infectious diseases, including HIV/AIDS and other viral infections, mycobacteria, fungi, parasitic diseases, osteomyelitis, skin and soft-tissue infections, endocarditis, infections in the returning traveler, and infections in patients with solid organ transplants and cancer," says Larry Schlesinger, MD, director of the Division of Infectious Diseases and director of Outpatient Services. "We are able to see new patients within one week and can accommodate more urgent visits as needed."

**For more information or to contact Dr. Schlesinger or Jeremy Young, MD, MPH, assistant director of outpatient services, call (614) 293-4854 or visit [www.internalmedicine.osu.edu/infectiousdiseases/](http://www.internalmedicine.osu.edu/infectiousdiseases/).**



### Melissa Whitmill, MD

To contact this physician, please call OSU Care Connection at 1-800-293-5123.

**Specialty:**  
General Surgery

**Clinical interests:**  
Trauma, surgical critical care and emergency surgery

**Residency:**  
Wright State University

**Fellowship:**  
Henry Ford Health System, Detroit

**Sees patients at:**  
Surgery Clinic  
Cramblett Hall, 456 W. 10th Ave.  
The Ohio State University Medical Center  
(614) 293-3185

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# Hyperbaric Oxygen Proven Best Treatment for Necrosis

"We have established, once and for all, that hyperbaric oxygen therapy is the most effective treatment for necrotizing fasciitis, which has been popularized in the media as so-called 'flesh-eating' bacteria," says Richard Schlanger, MD, PhD, a physician-scientist at Ohio State's Comprehensive Wound Center.

Necrotizing fasciitis is a rare bacterial infection that, when left untreated, destroys skin and soft tissues, including fat and fascia. Schlanger says the synergy between anaerobic and aerobic bacteria creates a powerful toxin resulting in rampant tissue necrosis.



Richard Schlanger, MD, PhD

"At this point in time, all of the major surgical journals - as well as the lay press - identify radical surgery and antibiotics as the treatment of choice for necrotizing fasciitis," he says. "Hyperbaric oxygen treatment is footnoted as experimental, when in actuality it is not."

Because hyperbaric oxygen therapy has been in use at Ohio State for more than 17 years, considerable anecdotal evidence suggested to Schlanger and his colleagues that it should be the first line of defense in this disfiguring - and highly morbid - condition.

Under the auspices of Ohio State's Comprehensive Wound Center (CWC), they conducted a three-year clinical study using the University Hospital East population to identify differences in outcomes among three patient categories:

- Those referred from an outside hospital after having received one or two days of standard treatment - multiple surgeries and antibiotics.
- Those initially diagnosed at outside hospitals but immediately referred to University Hospital East.
- Those admitted to University Hospital East directly from that hospital's Emergency Department or the CWC.

All three groups were homogeneous: equal numbers of men and women, between the ages of 20 and 80 years. Sixty percent of the study population was diabetic; other co-morbidities contributed to infection. Upon immediate admission to the study, all patients received the same protocol: surgical debridement, appropriate antibiotics and hyperbaric dive within 24 hours of at least 2.4 atmospheres of pressure.



Left thigh debridement down to and through fascia.



Patient started with Hyperbaric Oxygen Therapy (HBO) post-op at 2.0 ATA for 90 minutes BID x 2 days then daily therapy for 5 days.



Negative pressure dressing was applied post-op for 2 weeks until discharge. Photo is 1 month post-op.



Split Thickness skin grafts were applied for total wound coverage. Patient continued to be followed as an outpatient.

"We found significant differences among the outcomes," says Schlanger, principal investigator. "The first group experienced an amputation rate of approximately 15 percent and, despite our best efforts, a mortality rate of 53 percent. The

second group did much better with an amputation rate of only 2 percent and mortality of 11 percent.

"However, we were very heartened to find that the third group experienced no amputations, no mortality and were discharged with 100 percent function in their extremities," he notes. "What we learned is that hyperbaric oxygen therapy (along with surgery and antibiotics) is the treatment of choice because it kills anaerobic bacteria, makes white blood cells much more aggressive and neutralizes endotoxins. In addition, we found that neovascularization, which is an angiogenesis byproduct of hyperbaric oxygen, is supported, allowing marginal tissue to recover."

The study was presented in 2008 at the CWC annual conference and is slated for publication in a peer-reviewed journal.

**To refer a patient or to schedule a wound consultation, call (614) 293-4811 or 1-888-340-3163.**



## research highlights

### Researchers Explore More Benefits of Aspirin

A study at Ohio State indicates aspirin may increase the amount and quality of high-density lipoprotein (HDL) the body produces, which could have benefits beyond aspirin's common uses. Study results were published in the August issue of the *Journal of Lipid Research*. "We showed that aspirin might induce the production of the protein components of HDL, which takes cholesterol out of the plaque and moves it back to the liver where it can be utilized," says Sampath Parthasarathy, PhD, MBA, a researcher in the Division of Cardiothoracic Surgery. "While aspirin has been used for its anti-inflammatory properties, we hope to create a new level of interest in its potential benefits." Parthasarathy leads a team that is using a \$1.88 million grant from the National Institutes of Health to continue the study and determine other benefits of aspirin.

**For more information or to contact Dr. Parthasarathy, call (800) 293-5123.**

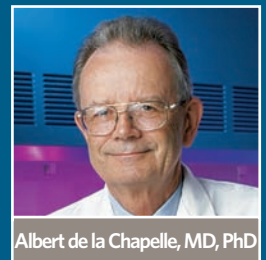


Sampath Parthasarathy, PhD

### Colon Cancer Linked to Unequal Gene Activity

Researchers at Ohio State's Comprehensive Cancer Center have discovered that a subtle difference in the activity of a pair of genes may be responsible for one of every 10 colon-cancer cases. The study is the first to link the transforming growth factor beta receptor 1 (*TGFBR1*) gene conclusively as a cause of colon cancer, and it may provide clinicians with a new way to identify people at high risk for this disease. The study was published online Aug. 14 at the *AAAS Science Express* Web site and was subsequently to appear in the *Journal of Science*. Everyone inherits two copies of this gene, and both usually produce equal RNA for making the *TGFBR1* protein. But in some people, one of these two genes produces less than the other. "That we saw this abnormal difference in gene expression in at least 10 percent of the colon-cancer patients and in very few people without colon cancer strongly suggests that it plays an important role in this disease," says principal investigator Albert de la Chapelle, MD, PhD. "If this difference is found in patients with colon cancer, it should prompt a study of other family members who, as determined by genetic counseling, may also have inherited the trait."

**For more information or to contact Dr. de la Chapelle, call (800) 293-5066.**



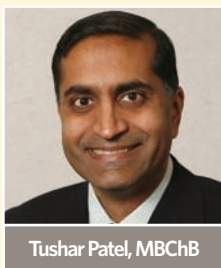
Albert de la Chapelle, MD, PhD

## Comprehensive Liver Care Available at OSU

**“W**ith the recent epidemics of hepatitis C and fatty liver disease, as well as an increasing incidence of liver cancer, the demand for specialized care is higher than ever,” says Tushar Patel, MBChB, director of Hepatology at Ohio State’s Medical Center.

To meet this need, the Division of Gastroenterology, Hepatology and Nutrition at Ohio State recently established a Comprehensive Liver Care Program that provides a full range of care for liver diseases. In offering the only multidisciplinary hepatology service in central Ohio, the Medical Center also cares for patients with cirrhosis and advanced liver diseases through specialized multidisciplinary clinics for Liver Transplant, Viral Hepatitis, and Hepatobiliary Neoplasia, in addition to General Hepatology.

“Our program not only coordinates closely with patients’ primary care physicians and gastroenterologists in communities across Ohio, but it also includes medical and surgical approaches for optimal management of patients with liver disease,” says Patel, an expert in liver cancers (see sidebar).



Tushar Patel, MBChB

“Specialists in liver-transplant surgery and transplant hepatology participate jointly in the evaluation, management, treatment and follow-up of patients with advanced liver disease. Professionals in social work, psychology, nursing,

transplant hepatology, transplant surgery and infectious diseases also participate in our liver-transplant program,” he adds.

The multidisciplinary Hepatobiliary Neoplasia Clinic provides expertise in the diagnosis, evaluation and management of patients with liver tumors. Patients in this clinic have access to specialists from surgery, medicine, radiology and oncology, as well as therapeutic clinical trials.

**“Areas of innovation include therapeutic trials for liver cancers, innovative approaches for inoperable liver tumors, and advanced interventional endoscopic techniques for biliary tract disease,” Patel says.**

Advanced procedures at Ohio State for the care of patients with liver disease include portal decompression, liver-tumor ablation, chemoembolization, radioembolization, interventional endoscopy, endoscopic ultrasound, liver surgery and liver transplantation.

**For more information or to refer a patient, call (614) 293-6255.**

### Transplant Viable Option for Liver Cancers

In recent years, the incidence of liver cancers has increased in the United States. Despite advances in surgical techniques, diagnostic approaches and treatments, the long-term survival for this malignancy remains poor unless it is detected early.

Recent studies demonstrate that liver transplantation and surgery are appropriate options for many liver cancers. Tushar Patel, MD, and his colleagues at Ohio State are advocating transplantation for patients with unresectable liver cancer that is not advanced and that is restricted to the liver.



Several options are available for patients with liver cancer for whom surgery is not possible. These include ablation, chemoembolization, radioembolization, systemic chemotherapy and investigational agents. Ohio State’s James Cancer Hospital and Solove Research Institute is among a handful of institutions in the nation with a dedicated multimodality team in place to evaluate and treat liver cancers.

## Academic Stress Put to the Test

"While most students are stressed by the prospect of taking an exam, medical students perhaps experience higher levels of stress than undergraduates because they care so much about their academic performance," says Janice Kiecolt-Glaser, PhD.

Kiecolt-Glaser and colleagues - Ronald Glaser, PhD, William Malarkey, MD, and Martha Belury, PhD - at Ohio State's Institute for Behavioral Medicine Research are tapping medical students at the University as subjects for a National Institutes of Health-funded study of how stress and diet interact to influence immune function and mood.

Kiecolt-Glaser, principal investigator, is a Distinguished University Professor and holds the S. Robert Davis Chair of Medicine in Ohio State's Department of Psychiatry. She has been investigating the impact of stress on the immune system since 1982.



Janice Kiecolt-Glaser, PhD

"We have learned that proinflammatory cytokines influence the onset and course of a number of age-associated diseases, and that stress and depression can substantially enhance the production of proinflammatory cytokines," Kiecolt-Glaser says. "This clinical trial will assess to what extent the ingestion of omega-3 polyunsaturated fatty acids may affect how stress produces changes in inflammation."

Kiecolt-Glaser explains that, although so-called "bad fats" (omega-6 polyunsaturated fatty acids) are needed for good health, the imbalance of omega-3 and omega-6 in the typical American diet is problematic.



The three-month study is a double-blind, placebo-controlled, randomized clinical trial with supplementation of omega-3 via fish oil capsules. Blood samples to monitor fatty acids will be collected at a lower-stress or non-exam time, and at a higher-stress, day-of-exam time. Immunological and psychological data to establish a baseline for changes in mood also will be collected.

The next four time points measured will follow during supplementation to provide data on the kinetics of change. Investigators hope to determine whether dietary supplementation with omega-3 will reduce proinflammatory cytokine production, and whether the omega-3-supplemented group will experience reliable changes in mood compared with the placebo group. They also will assess how much omega-3 supplementation modulates stress-related increases in cytokine production and mood during examinations.



### John Young, MD

To contact this physician, please call OSU Care Connection at 1-800-293-5123.

**Specialty:**  
Cardiovascular Medicine

**Clinical interests:**  
Complex coronary and peripheral interventional cardiology; emerging technology, therapeutics and devices for cardiovascular disease

**Residency:**  
The Ohio State University Medical Center

**Fellowships:**  
The Ohio State University Medical Center  
The Lindner Center for Research and Education, Cincinnati

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