

Accidents Don't 'Just Happen'

“The odds are that over the course of one’s career, every primary care physician will have at least one patient who suffers a major trauma,” says Steven Steinberg, MD, who directs the Division of Critical Care, Trauma and Burn at Ohio State University Medical Center (OSUMC).

Trauma surgeons and physicians at Ohio State’s Medical Center closely communicate with a patient’s primary care physician to relate what precipitated his or her patient’s visit to Ohio State’s Level I Trauma Center, what transpired after the patient arrived, what the prognosis is and plans for follow-up treatment.

“The fact remains, unfortunately, that many of our patients do not have pre-existing relationships with a community physician, because the majority of trauma patients are young male adults who have yet to establish a primary care relationship,” Steinberg says.



Trauma surgeons and physicians at Ohio State’s Level 1 Trauma Center closely communicate with a patient’s primary care physician on all aspects of the patient’s visit.

Sally Betz, RN, MS, trauma program coordinator, notes that patients come to Ohio State from communities throughout Ohio and beyond. “Last year, 40 percent of our patients were transferred to us from outside Franklin County. We frequently care for patients from West Virginia and Kentucky and, on occasion, other states.”

The American College of Surgeons verified OSUMC as a Level I Trauma Center 16 years ago, one of the first to be so designated after the verification program began in 1987. A Level I Trauma Center - the highest of three levels - must possess advanced diagnostic and treatment capabilities, including cardiopulmonary bypass, nuclear scanning and neuroradiology. A center must also play a leadership role in education, research and patient care, and be reverified every three years.

“In addition to meeting the criteria for Level I designation, Ohio State also offers numerous other subspecialties, including hyperbaric treatment options (see story, page A-4).

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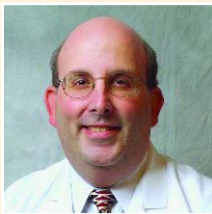
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Also, we have the only adult burn center in central Ohio and an award-winning rehabilitation program (see sidebar, this page)," says Steinberg, who also is vice chair of clinical affairs in Ohio State's Department of Surgery.

"We place strong emphasis on communicating with our patients' families while their loved ones are under our care," he says. "Our trauma attendings see hospitalized patients 365 days of the year, which we feel contributes toward our ability to not only deliver technically excellent medical care, but also care that is personalized for every patient."



Steven Steinberg, MD

Betz says one of the most important aspects of the Medical Center's trauma program is education, with an emphasis on pre-hospital personnel such as EMS professionals and those who staff the air critical care transportation service, MedFlight of Ohio. "In addition to providing updates and working closely with these all-important individuals, we also spend time on community-based trauma prevention programs. We don't like to use the word 'accident' around here, because so much of trauma is preventable when people can just be made aware of how to stay safe."

To transfer a trauma patient to Ohio State University Medical Center, call 1-800-293-5123, option 1.



Transfer Center

Besides facilitating quick and efficient transfer of trauma patients from rural and community hospital emergency departments and trauma scenes to Ohio State's Level I Trauma Center, the Ohio State University Medical Center Transfer Center arranges timely and appropriate access for other patients (including urgent, transplant, stroke and cardiac patients who require immediate intervention) to Ohio State physicians and inpatient facilities. On average, the Center handles 650 requests for transfer per month and is responsible for gathering pertinent patient information - including primary care physician information - as well as coordinating bed placement and physician-to-physician consultation.

To transfer a trauma or critically injured patient to Ohio State University Medical Center, call 1-800-293-5123, option 1.



Dodd Hall

The Medical Center's nationally recognized Rehabilitation Services at Dodd Hall features a team of physicians, psychologists, nurses, therapists, social workers and dietitians who collaborate to meet each patient's changing needs and improve his or her quality of life. Ohio State's Rehabilitation Inpatient Program at Dodd Hall offers specialized programs in stroke, spinal cord injury and brain injury. It also offers outpatient rehabilitation services to help patients decrease pain and improve function. These are complemented by such support services as an arthritis program, wheelchair seating and positioning, and a home skills clinic.

Specialists in Ohio State's Rehabilitation Program also strive to turn research discoveries into innovative patient care. Current studies involve post-stroke concerns, robotic devices to improve arm function, medication to enhance speaking ability, vibratory devices to improve balance, therapies following treatment for brain tumors, and work-injury prevention strategies.

Ohio State's Rehabilitation Services at Dodd Hall has been ranked among America's Best Hospitals in Rehabilitation for 14 consecutive years by *U.S. News & World Report*.

To make a referral or ask questions about the program, call (614) 293-3824.



news briefs

From Ohio State University Medical Center

Gene Screen Seeks the 'Why' Behind Wound Healing

Emerging technology is helping Ohio State University Medical Center researchers learn why some wounds heal quickly and others become chronic sores that can last for years. Scientists are using laser capture microdissection to pluck a single cell from wound samples to boil the search down to the genetics behind wound healing. "Traditionally



Gayle Gordillo, MD

there has been no way to tell what's going on in the wound except by visualization and what a biopsy says - whether it's infected or cancerous. We're advancing the depth and level of this knowledge," says Gayle Gordillo, MD, principal investigator of the "gene screen" study, which will indicate which genes predict healing

and which are expressed in wounds that are chronic. Researchers want to improve diagnostic screening so physicians can determine earlier which wounds won't heal. They also want to identify genetic targets for new drugs that could stimulate wound healing.

For more information or to contact Dr. Gordillo, call 1-800-293-5123.

Minimally Invasive Stent Placement Can Fix Thoracic Aneurysms

The availability of a federally approved stent for aortic aneurysms is improving quality of life for patients who otherwise would undergo a complicated open surgery or live a life of worry. Ohio State University Medical Center is one of few centers in the state equipped to use the stent graft for thoracic aortic aneurysms because of the highly specialized training required to safely place the device. "Our experience has been very good with this device," says vascular surgeon Jean Starr, MD. "We have fixed aneurysms that couldn't have been fixed any other way." The minimally invasive procedure enables aneurysm repair



Jean Starr, MD

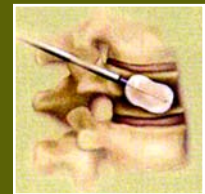
for some patients who are too sick or whose disease is too extensive for open surgery. "This has revolutionized the way we treat patients with thoracic aortic aneurysms," she says. The stent graft is made of nitinol, a nickel titanium shape-memory alloy that expands when exposed to body temperature, and Gore-Tex.

For more information or to contact Dr. Starr, call 1-800-293-5123.

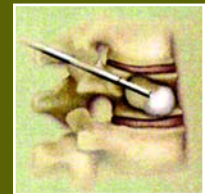
Balloon Gives Lift to Surgery Repairing Fractured Vertebrae

A procedure now being performed at Ohio State University Medical Center relieves the severe pain of broken vertebrae and restores height to hunched-over patients, thanks to a tiny balloon. The procedure, called balloon kyphoplasty, is a minimally invasive method of injecting bone cement directly into broken vertebrae through two small puncture incisions. The balloon provides the added benefit of lifting the affected vertebra back to its normal position before the cement is inserted. "Good candidates for this procedure would be elderly women with a compression fracture caused by osteoporosis. These women often develop a deformation over time that hunches them forward. We fix the fracture, relieve their pain and restore upright posture," says Louis Caragine, MD, PhD, a neurosurgeon and director of Endovascular Neurosurgery at Ohio State's Medical Center. This procedure often allows patients to make a rapid return to daily activities.

For more information or to contact Dr. Caragine, call 1-800-293-5123.



Balloon inflation



Filling the cavity with bone cement



The internal cast

Images courtesy of Kyphon Inc. and the International Myeloma Foundation.

Collaboration Credited for Positive Outcome in Farming Trauma

Last fall, a 43-year-old woman was brought to Ohio State's Level 1 Trauma Center after suffering a complete scalp degloving injury in a farm accident. Her remarkable healing - full coverage of her entire skull - was possible not only because of quick thinking on the part of her father, who retrieved her amputated scalp, but also because of the high degree of collaboration among specialists and surgeons.

"This patient presented with a catastrophic avulsion injury of her scalp that included her forehead, eyebrows, ears and nape," recalls Colin Kaide, MD, of Clinical Emergency Medicine. Kaide was part of the trauma team when the patient was transferred to Ohio State from a community hospital via MedFlight of Ohio.

"When I saw her acute traumatic ischemic injury, I immediately recognized the potential for hyperbaric treatment," he says.

Before that treatment could take place, ENT surgeon L. Arick Forrest, MD, vice chair of Otolaryngology, performed microvascular surgery to reattach the patient's scalp. "Dr. David Powell closed portions of the scalp, while I focused on locating and reattaching arteries on either side," Forrest says. "Thanks to the coordinated efforts of our Transfer Center, precious time was saved, as the reattachment had to be completed within four hours of the injury for the tissue to have a chance of survival. We spent more than four hours in surgery alone; the hyperbaric treatment that followed was key to the positive outcome."

Kaide explains that, due to the severe disfiguring nature of the injury and the fact that no skin graft would be as good as her native scalp, he saw the case basically as "the world's largest and most complicated skin flap."

"Acute arterial insufficiency put her at significant risk for hypoxia and subsequent flap necrosis," he says. Immediately following surgery, the patient received her first hyperbaric treatment.

Sorabh Khandelwal, MD, medical director of Ohio State's Comprehensive Wound Center and director of Hyperbaric Medicine, says hyperbaric oxygen (HBO) therapy is neither necessary nor recommended for the support of uncompromised grafts or flaps. However, in tissue compromised by irradiation or trauma, or in scenarios where there is decreased perfusion, HBO has demonstrated benefit - and Khandelwal says this was an extreme case of tissue compromise.



Farm accident patient, prior to scalp reattachment.



Farm accident patient during hyperbaric treatment.

He says two main mechanisms account for the increase in flap salvage. The first is hyperoxygenation of the plasma. Within a failing flap, the capillaries may be so compressed from tissue edema and obstructed with cellular elements that "plasma streaming" is the only form of perfusion feeding the flap. Under hyperbaric conditions, the plasma contains 14 times more oxygen than normal.

"The second mechanism is a reduction in reperfusion injury," he says. "Whenever there is a significant interruption in the circulation followed by restoration of flow, we will see a reperfusion injury, which is similar to reperfusion injury noted in myocardial infarctions and carbon monoxide poisoning.

"What really made the difference in achieving such a positive outcome for this patient, however, was the teamwork among the broad range of specialties involved and the timeliness of treatment," Khandelwal adds.

To transfer a trauma patient to Ohio State University Medical Center, call 1-800-293-5123, option 1.



The Hyperbaric Medicine Program,

a component of Ohio State University Medical Center's Comprehensive Wound Center (CWC), is staffed by several physicians who are board-certified in hyperbaric medicine. Appropriate referrals to this program include patients with all types of non-healing wounds, including diabetic ulcers, pressure ulcers and gangrene/necrosis.

To refer a patient for hyperbaric treatment within Ohio State's Comprehensive Wound Center, or to schedule a free wound consultation for your patient, call (614) 293-4811 or (888) 340-3163.



From Ohio State University Medical Center

research highlights

Supermap of Avian Flu Yields Information on Source/Spread

Scientists have designed an interactive map of the spread of the avian flu virus that for the first time incorporates genetic, geographic and evolutionary data that may help predict where the next outbreak will occur. They have also tested hypotheses about strains of the virus that appear to be heading west and can infect humans. Daniel Janies, PhD, of Biomedical Informatics at Ohio State University Medical Center, and partners at the University of Colorado and the American Museum of Natural History combined data on 351 strains of the virus into a phylogenetic tree and projected the tree into Google Earth to create the map, which shows how the virus has mutated. Anyone can download Google Earth, as well as the avian flu mark-up file that Janies and his

team created, so anyone can run the software and see the map. "The map gives us a new way of seeing the virus in action and understanding what it is and isn't doing," says Janies.

For more information or to contact Dr. Janies, call (614) 292-4778.



Daniel Janies, PhD

Pancreatic Cancer Markers Identified, May Predict Survival

Scientists at Ohio State University's Comprehensive Cancer Center (OSUCCC) have discovered a way to distinguish pancreatic cancer from non-cancerous tissue. The method may also distinguish patients who will survive longer than two years. The study, published in the May 2 issue of the *Journal of the American Medical Association*, examined pancreatic cancer cells for microRNA (miRNA) and showed that relative levels of certain miRNAs can distinguish pancreatic cancer from nearby noncancerous tissue and from inflamed pancreatic tissue. "Our findings suggest that miRNAs might help detect the disease earlier and differentiate it from noncancerous conditions," says Mark Bloomston, MD, of the OSUCCC's Molecular Biology and Cancer Genetics Program. "We also found we could predict which patients

would do better or worse based on just a few miRNAs. Such correlations with survival have previously been lacking in pancreatic cancer."

For more information or to contact Dr. Bloomston, call 1-800-293-5123.



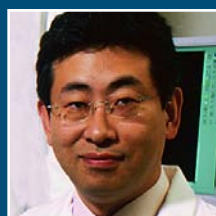
Mark Bloomston, MD

Three Proteins May Play Key Role in Nerve Cell Repair

Some mature brain cells can grow extensions when the amount of three particular proteins on their surface increases, a study at Ohio State University Medical Center shows. The research examined three related receptor proteins - GPR3, GPR6 and GPR12 - on nerve cells in the brains of rats. When researchers increased the amount of the three proteins, the cells grew extensions that were up to three times longer than those on nerve cells with normal levels of the proteins, and the extensions grew four to eight times faster than in control cells. "Our findings suggest that these three proteins could be important targets for treating stroke, brain and spinal cord injuries, and also neurodegenerative diseases," says Yoshinaga Saeki, MD, PhD, chief of Ohio

State's Dardinger Laboratory for Neuro-oncology and Neurosciences. The study was published in the April 6 issue of the *Journal of Biological Chemistry*.

For more information or to contact Dr. Saeki, call 1-800-293-5123.



Yoshinaga Saeki, MD, PhD

OSU Burn Center Offers Personalized Care

Although patients may not realize it, physician advice about burn prevention can be a valuable component of primary care.

"Primary care physicians are positioned to play an important role in burn prevention, as well as in contributing to positive outcomes for their patients who suffer burns," says Sidney Miller, MD, FACS, director of the Ohio State University Burn Center.

"As they counsel their patients about screening tests, smoking cessation, weight management and other healthy lifestyle choices, primary care physicians can make a huge difference by also talking with them about burn prevention," Miller says. "In addition, they know when it is appropriate to refer a patient with serious burns, or with burns of particular sites such as the face and hands, that require the specialized care we provide."

As part of Ohio State's Level 1 Trauma Center, the Burn Center offers personalized health care for every patient. Complex burn management is provided on an inpatient basis with 26 beds staffed by specially trained nurses. The Center also contains specialized areas for hydrotherapy treatment.

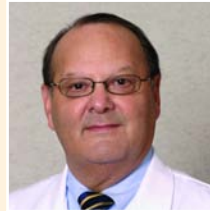
The Outpatient Burn Clinic, which meets three times weekly, provides continuing clinical care, including evaluation, dressing changes and long-term follow up. Rehabilitation is provided through Ohio State's

"Primary care physicians are positioned to play an important role in burn prevention, as well as in contributing to positive outcomes for their patients who suffer burns."

Sidney Miller, MD

award-winning Dodd Hall (see sidebar, page A-2). The Buckeye Burn Support Group, funded through a grant from American Electric Power, meets regularly to help patients and families deal with issues such as pain, appearance, relationships and other concerns.

Research is an integral element of the Burn Center, which participates in studies evaluating the early use of intravenous Methadone for pain management, C-reactive



Sidney Miller, MD

protein as an early indicator of septicemia in burn patients, and other aspects of burn care. All of these services can be accessed at (614) 293-BURN.

The only adult burn center in central Ohio, the OSU Burn Center's medical staff and support team also are dedicated to burn prevention and education. Miller, who serves on the Ohio Department of Public Safety EMS Trauma Committee and is secretary of the American Burn Association, regularly presents to rural EMS personnel and provides community education. "Our ultimate goal," he says, "is to put ourselves out of business."

just the
FACTS

Burn Statistics

500,000

annual burn injuries receiving medical treatment

4,000

annual fire and burn deaths

40,000

annual hospitalizations for burns (includes 25,000 admitted to specialized burn centers)

43 percent

of all burns happen at home

17 percent

of all burns happen on streets/highways

8 percent

of all burns happen on the job

125

number of specialized burn centers in United States

(Source: American Burn Association -www.ameriburn.org)

new faces



Quinn Capers, MD

Director, Peripheral Vascular Interventions

Specialty:

Cardiovascular Medicine

Clinical Interests:

Complex coronary and peripheral arterial interventions, hypertensive cardiovascular disease and peripheral arterial disease

Residency:

Emory University, Atlanta

Fellowship:

Emory University, Atlanta



Michael Miller, MD

Chair, Plastic Surgery

Specialty:

Plastic Surgery

Clinical Interests:

Breast reconstruction, especially after mastectomy

Residencies:

Berkshire Medical Center, Pittsfield, Mass.; Ohio State University Medical Center

Fellowship:

Tulane University, New Orleans



Tushar Patel, MD

Director, Hepatology

Specialty:

Gastroenterology

Clinical Interests:

Liver cancer and other liver diseases

Residency:

Mayo Clinic, Rochester, Minn.

Fellowship:

Mayo Clinic, Rochester, Minn.

To contact any of these physicians, please call OSU Care Connection at 1-800-293-5123.

2007 Global Diabetes Summit

Conquering Diabetes Frontiers with
New Discoveries and Technologies

Thursday, November 29 – Saturday, December 1, 2007

The Hilton at Easton, Columbus

International leaders representing five continents will gather to discuss the global diabetes pandemic and the impact of diabetes on international health care. During the three-day symposium, diabetes experts will present the latest seminal outcomes in diabetes research and formulate an interdisciplinary road map for prevention, detection and treatment of diabetes patients.

For more information or to make a reservation for the 2007 Global Diabetes Summit, visit our Web site at www.medicalcenter.osu.edu/go/diabetessummit

