The latest funding report from the National Institutes of Health (NIH) shows that the Department of Surgery at the Ohio State University Medical Center ranked 24th among 88 academic surgery departments in NIH funding received during fiscal year 2005, or in the top 27 percent.

“This report is evidence of our commitment to research in major areas of interest most likely to translate into improved patient care,” says Dr. E. Christopher Ellison, the Robert M. Zollinger professor and chairman of surgery, associate vice president for health sciences, and vice dean of clinical affairs in the College of Medicine. “Our researchers make significant efforts and deserve recognition for their excellent work as part of our surgery team.”

The report also indicates that Ohio State’s Medical Center earned double-digit percentage increases in support from the NIH for two years in a row and doubled its annual funding from the agency in the past six years.

In all, the Medical Center received $86 million in fiscal year 2005 from the NIH, up 12 percent from the previous year’s $77 million. The 2004 total was a 13-percent increase from the $68 million in NIH funding received in fiscal year 2003. The Medical Center’s NIH research funding has doubled since 1999, when Ohio State biomedical researchers received $42 million.

“This consistent upward trend in NIH funding is the result of strategic planning to commit resources into the research enterprise and especially to recruit and retain our most talented scientists,” says Dr. Fred Sanfilippo, senior vice president and executive dean for health sciences and CEO of the Medical Center. “We are making these gains in funding at a time when the competition is particularly fierce for federal support. A 12-percent increase during a period when the NIH had only a 3-percent budgetary increase says a lot about the excellence and productivity of our faculty.”

The fiscal year for the NIH is recorded from Oct. 1 through Sept. 30, and the latest figures represent funding received through September 2005. Ohio State now ranks 45th among the 123 medical schools ranked, up from 52nd place in the previous year.
Researchers in the Department of Surgery at the Ohio State University Medical Center are using a new technology to examine why some wounds heal quickly, while others become chronic wounds that last for months and even years.

Called laser capture microdissection (LCM), the new technology is used to procure pure cells from specific microscopic regions of tissue sections. Scientists in the Department of Surgery are using LCM to obtain a single cell from wound samples, in order to study the genetics underlying wound healing.

“Traditionally, in wound healing, 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,” says Dr. Gayle M. Gordillo, assistant professor of surgery in the Division of Plastic Surgery and principal investigator of the study, known informally as the “Gene Screen.” “We’re advancing the depth and level of this knowledge in our investigation.”

The study is designed to demonstrate which genes predict healing and which genes are expressed in chronic wounds and predict a failure to heal. The two primary goals of the study are to:

- Improve the diagnostic screening process, so that physicians can determine at an earlier stage which wounds won’t heal.
- Identify genetic targets for potential new drugs that could stimulate the wound-healing response.

“Now, because we don’t have that information yet, there’s lots of trial and error in the treatment of chronic wounds,” says Gordillo, director of the plastic surgery research laboratory at Ohio State’s Medical Center and director of research for its Comprehensive Wound Center.

About 1,000 wound tissue samples will be collected for the study at seven U.S. centers affiliated with National Healing Corp., a private Florida company that manages 20 percent of the nation’s wound-healing centers. Ohio State’s Comprehensive Wound Center has a partnership with the corporation.

“This is the first time screening has been done like this in a wound clinic,” says Dr. Chandan K. Sen, professor of surgery, vice chairman for surgical research, and executive director of the Comprehensive Wound Center.

The researchers are taking biopsies from clinic patients with both healing and non-healing wounds and using LCM to study a homogeneous cell population and run a full genome screen.

“The goal is to find out, after already knowing the clinical outcome data, if there’s a relationship between gene expression patterns and healing outcomes,” Sen says.

The laser capture technology allows the scientists to zero in on microvessels, which are expected to develop when tissue is healing. If the microvessels in chronic wound samples don’t develop, the researchers can then examine endothelial cells, which line the vessel walls, to see if there is a genetic basis in the cells for why wounds do or don’t heal.

The results of the research could help reduce the cost of wound care, which is more than $8 billion annually, and improve the quality of life and productivity of patients suffering from chronic wounds.

Ohio State is leading the study in part because the Medical Center houses the infrastructure needed to complete all phases of the study, Gordillo says.

For example, a third team leader, Dr. Sashwati Roy, assistant professor of surgery in the Division of General and Gastrointestinal Surgery, is a molecular biologist with expertise in interpreting the data collected from the genes and identifying candidate genes involved in healing.

“One little genetic mutation can affect a person’s response to medications. The laser capture microdissection is really precise and gives us all the material we need from a single cell,” Roy says.

She also notes that the genetic approach to treatment is particularly important for wounds. Though wounds are not routinely studied as a disease process, they are similar to cancer, she says. “No one wound can be compared to another. In the future we’ll look at the gene expression profile and treat accordingly.”

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**PLASTIC SURGERY**

**Scientists examining genetics underlying wound healing**

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RESIDENT COMPETEN CY IS INCREASED FOLLO WING SUCCESSFUL REVIEW

The Department of Surgery’s general surgery residency program recently received approval to increase its categorical resident complement from four to six, following a successful site review last year by the Residency Review Committee (RRC) of the Accreditation Council for Graduate Medical Education (ACGME).

“The RRC told me that it was very unusual that they would approve an increase from four to six,” says Dr. Mark W. Arnold, professor of clinical surgery and vice chair-man for surgical education. “That’s a big increase.”

Since 2002, when Arnold was appointed vice chairman for surgical education, the Department of Surgery has instituted major changes in the general surgery residency program.

The changes began as the department complied with new standards set by the ACGME, the group that oversees medical and surgical residency programs in the United States.

First, as part of an effort to emphasize educational outcome assessment, the ACGME required that training programs provide educational experiences and evaluation so that residents would demonstrate competence in six areas:

- Patient care.
- Medical knowledge.
- Practice-based learning and improvement.
- Interpersonal and communication skills.
- Professionalism.
- Systems-based practice.

In another initiative, the ACGME announced restrictions to keep residents from working more than 80 hours a week or more than 30 consecutive hours, six of which cannot include seeing new patients.

“We’ve made many changes in the program,” Arnold says. “On the six competencies, we’ve been educating the residents and the faculty through Grand Rounds and other avenues.

“With the 80-hour workweek, we keep track of everything. Every month, we have our residents file their hours. On average, they work about 68 or 69 hours per week. I would say that the transition is complete. The 80-hour workweek is part of the culture and works very well.”

Arnold says there have been other important changes:

- Under the guidance of Dr. Peter Muscarella, assistant professor of surgery, the department has reorganized the entire didactic program, dividing residents into two groups. First- through third-year residents attend the Basic Sciences Conference, where the program’s three-year core curriculum in basic sciences is presented. Fourth- and fifth-year residents attend Professor Rounds, where the department’s full professors cover clinical topics in depth.
- Under the direction of Dr. Ginny L. Bumgardner, professor of surgery, the department has integrated its master of medical science program into the resident laboratory experience. “Now residents have a structured experience, in which they can accomplish something meaningful during their one or two years in the lab, and have a master’s degree to show for it,” Arnold says. “That’s been a major improvement in the program. We’ve had positive feedback from residents, and we think we’re in the forefront of surgical education in this regard.”

- The general surgery residency now places greater emphasis on general surgery. “We’ve focused more on the core of general surgery, and reduced the amount of time that residents spend on non-general surgery rotations.

“We do a lot of laparoscopic surgery, and we make sure that all of our residents are first-class laparoscopic surgeons,” Arnold says. “Here, all the surgeons do their own endoscopies, which is very unusual. All our residents are well-trained endoscopists.”

He says the changes have resulted in a stronger program and have attracted greater interest. “This year we had a record number of applicants to the program. We used to get interest mostly from students in the Midwest, but we now match students from first-class, top-25 medical schools.

“Certainly, the educational opportunities here are just tremendous. The range of clinical experience for the residents here is second to none in the United States. Our goal is to make this general surgery residency one of the best in the country.”

Arnold
Two cardiothoracic surgeons recently joined the faculty of the Department of Surgery at the Ohio State University Medical Center.

Dr. Michael S. Firstenberg, previously clinical associate staff physician at the Cleveland Clinic, in Cleveland, Ohio, on Jan. 1 began an appointment as assistant professor of surgery in the Division of Cardiothoracic Surgery. A fellow in cardiothoracic surgery at Ohio State from 2004 to 2005, Firstenberg received his undergraduate degree at the University of Chicago and his medical degree at Case Western Reserve University, in Cleveland. He completed a residency in general surgery at University Hospitals, in Cleveland, and research fellowships at the Cleveland Clinic and the National Institutes of Health, in Bethesda, Md.

Dr. Alexandru M. “Mike” Vaida, previously a fellow in cardiothoracic surgery at Ohio State, on Dec. 4, 2006 began an appointment as assistant professor of surgery in the Division of Cardiothoracic Surgery. Vaida received his medical degree at the University of Medicine and Pharmacy, in Targu-Mures, Romania, and an internship in cardiovascular surgery at Targu-Mures General Hospital. He was an acting intern in cardiothoracic surgery at the Veterans Affairs Medical Center, in Richmond, Va., and completed his internship and residency in general surgery at the Medical College of Virginia Hospitals, in Richmond.

AMERICAN COLLEGE OF SURGEONS

Department well-represented at 92nd Annual Clinical Congress

The Department of Surgery at the Ohio State University Medical Center was well-represented at the 92nd Annual Clinical Congress of the American College of Surgeons (ACS), with six faculty members participating in educational programs and activities at the influential meeting, held Oct. 8–12, 2006, in Chicago.

Dr. Mark W. Arnold, professor of clinical surgery in the Division of General and Gastrointestinal Surgery and vice chairman for surgical education in the Department of Surgery, was a speaker for an educational session titled “Ulcerative Colitis: Surgical Options.”

Dr. Donna A. Caniano, the H. William Clatworthy Jr. professor of surgery and chief of the Division of Pediatric Surgery, served as a panelist during a session on end-of-life issues in pediatric surgery titled “Finding Clinical Perspective when No One Wants to Quit: Who Is Needed, What Is Needed?”

Dr. Jeffrey W. Hazey, assistant professor of surgery in the Division of General and Gastrointestinal Surgery, presented “Upper Gastrointestinal Hemorrhage: Diagnosis, Strategy, and Medical Management.”

Dr. W. Scott Melvin, professor of surgery, chief of the Division of General and Gastrointestinal Surgery, and director of the Center for Minimally Invasive Surgery, presented a cine-clinic titled “Endoscopic Therapy of Gastroesophageal Reflux.” He also was an instructor for a postgraduate course in gastrointestinal disease titled “Gastroesophageal Reflux: Endoluminal Approaches,” and he served as a panelist for a general surgery video session.

Dr. Sidney F. Miller, professor of surgery in the Division of Critical Care, Trauma, and Burns and director of the burn center at Ohio State’s Medical Center, participated at the Clinical Congress as a member of the National Trauma Data Bank Committee and the Committee on Trauma.

The Clinical Congress is one of the largest international surgical meetings held. The 2006 meeting offered 34 postgraduate courses, more than 280 hours of general and specialty educational sessions, more than 60 hours of video-based educational sessions, and more than 20 research-in-progress reports.
The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has awarded the lung volume reduction surgery program at the Ohio State University Medical Center a two-year certification of distinction.

The lung reduction program is the first such program in the United States to earn this recognition. An independent, not-for-profit organization, the JCAHO is the nation’s predominant standard-setting and accrediting body in health care. The commission examines the ability of an organization to provide safe, high-quality care, as well as its actual performance.

Dr. Patrick Ross, Jr., associate professor of clinical surgery and director of thoracic surgery in the Division of Cardiothoracic Surgery, and Dr. Philip T. Diaz, associate professor of pulmonary medicine, developed and direct the lung volume reduction surgery program, which began in 1995.

Lung volume reduction surgery can alleviate the symptoms of pulmonary emphysema and improve the quality of life of many patients with the irreversible disease.

Emphysema is a disorder in which a breakdown of the walls of the alveoli, or air sacs, in the lungs causes a decrease in respiratory function. People with emphysema suffer from chronic shortness of breath and often require the assistance of oxygen.

During the lung reduction procedure, the surgeon removes diseased portions of the lung in order to allow the remaining, healthy portions of the lung to expand freely in the chest cavity.

Ohio State’s Medical Center participated in a five-year, National Institutes of Health-funded clinical trial that demonstrated the advantages of the lung reduction technique for selected patients. The Centers for Medicare and Medicaid Services subsequently designated the Medical Center as one of only 18 U.S. medical centers to provide patients with the treatment.

GRANTS


PUBLICATIONS


ABSTRACTS


CHAPTERS


PRESENTATIONS

Presentations

Continued from page 5


Besner GE. Heparin-binding EGF-like growth factor (B-EGF) therapy for necrotizing enterocolitis. Children’s Hospital, Symposium on Causes and Consequences of Preterm Birth, Columbus, Ohio, Oct. 20, 2006.


IN BRIEF


Smith J. Blunt splenic injuries: have we watched long enough? American Association for the Surgery of Trauma, New Orleans, La., Sept. 28–30, 2006. 

RECOGNITIONS

Dr. Lloyd G. Brown, resident in general surgery, received a master of medical science degree last year.

The American College of Surgeons has reverified the Ohio State University Medical Center as a Level I trauma center, denoting it as a regional resource to care for the most critically ill and injured patients. The Level I verification followed a comprehensive review of the Medical Center’s practices and policies related to providing optimal care for critically ill and injured patients. The review, conducted by trauma surgeons associated with the American College of Surgeons, takes place every three years. The Medical Center has held a Level I designation for 16 years, and was one of the first hospitals to receive it after the verification program started in 1987.

Dr. W. Scott Melvin, professor of surgery, chief of the Division of General and Gastrointestinal Surgery, and director of the Center for Minimally Invasive Surgery, recently was elected vice president of the Fellowship Council, a multi-society organization that currently administers more than 150 fellowship positions in general surgery.

Dr. Robert L. Ruberg, professor of surgery, interim chief of the Division of Plastic Surgery, and senior vice chairman for academic and administrative affairs in the Department of Surgery, received the 2006 Golden Stethoscope Award at Columbus Children’s Hospital. The award is presented to physicians who exhibit excellence in patient care, mentoring, and communication.

MMSP CORNER

Master of Medical Science Program Students, Projects for 2006–2007

- Dr. Meghan R. Forster: Cytomegalovirus in Critically Ill Surgical Patients. Research Advisor: Dr. Charles H. Cook, assistant professor of surgery in the Division of Critical Care, Trauma, and Burns.
- Dr. Natalie B. Jones: Modulation of Tumor CEA Levels for an Anti-CEA Vaccine. Research Advisor: Dr. William E. Carson, III, associate professor of surgery in the Division of Surgical Oncology.

Calendar of Events for 2006–2007

- New MMSP Student Training Objectives and Planning ............ June 15, 2006
- James King Research Award Competition ............................. July 13, 2006
- Fall Quarter MMSP Student Update ..................................... Sept. 22, 2006
- Preparation of PGY1s and PGY2s for MMSP .......................... Oct. 26, 2006
- Winter Quarter MMSP Student Update ................................. Feb. 1, 2007
- Spring Quarter MMSP Student Update ................................. May 2007
- Master’s Degree Presentations ............................................. May–June 2007
- End-of-the-Year MMSP Student Report ................................. June 2007
INSIDE:

1 Department of Surgery ranks 24th of 88 programs supported by NIH

2 Scientists examining genetics underlying wound healing

3 Resident complement is increased following successful review

4 Specialists join Surgery faculty

A MedFlight helicopter approaches the helipad above Rhodes Hall at the Ohio State University Medical Center. The American College of Surgeons recently reverified Ohio State’s Medical Center as a Level I trauma center, denoting it as a regional resource to care for the most critically ill and injured patients. See “Recognitions” on page 7. Photo by Jim Brown.