The Department of Anesthesiology
of Wake Forest University
School of Medicine

The Anesthesia Monitor

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Lights, Camera, Anesthesia

WFU Anesthesia Programs Take Part in Film

The film crew working in the Medical Center OR and Patient Simulation Lab earlier in the year signaled a rare, learning experience for anesthesia trainees. A film shoot was indeed underway, and among the principals were anesthesia residents, student nurse anesthetists, and administrators of the Department of Anesthesiology and the Nurse Anesthesia Program. Leading the project, which included on-site filming here in February and March, was Dr. Edmond I. Eger II, Professor in the Department of Anesthesia and Perioperative Care at the University of California, San Francisco, and Dirk Wales, director of the film crew. The result of their efforts will be an instructional DVD and accompanying textbook on the subject of inhaled volatile anesthetics.

James Thomas, SRNA, (left) and Dr. Ted Eger (center), during filming of an OR sequence for a forthcoming DVD on inhaled volatile anesthetics.

Baxter Healthcare Corporation is funding the project and chose as its author and moderator Dr. Eger, a renowned authority on volatile anesthetics with 20 years of experience in instructional filming. CME and CE credit, sponsored by the Dannemiller Foundation, will be available with these media. The Department received an educational grant to help support its participation in the project.

Eger noted that the DVD and book "will be free. I think the first audience that we hope will use these will be residents and student nurse anesthetists. But the DVD and book will be available to practitioners, both anesthesiologists and CRNAs. The DVD and book are primarily intended for the North American audience, but there has been some interest from Europe in obtaining copies of each."

Dr. Ray Roy, chair of this Department, and Sandra Ouellette, CRNA, director of the Nurse Anesthesia Program, noted that the WFU anesthesia training programs were likely choices for this filming for several reasons: the good reputations of both programs, their good relationship, and Roy's own friendship with Dirk Wales.

Filming consisted of two phases: first, the shooting of OR and Patient Simulation Lab cases; and, second, filming of a seminar led by Dr. Eger that incorporated footage from the earlier cases. The OR and Patient Simulation Lab shots took place during 5 days in February and involved over 30 different cases, noted Dr. Mike Olympio, organizer of those sequences. Two anesthesia residents (Tracey Cole and Quinn McCutchen) and 3 student nurse anesthetists (Jennifer Bosso, James Thomas, and Mike Zinckgraf) were filmed interacting with either Olympio or Eger in these cases. Olympio observed, "This effort required the consent and cooperation of the entire Division of Surgical Services, in addition to consent from patients, parents, and family members." He also commented, "Thanks should be given to the residents and the SRNAs who participated, and to the SRNA program under Sandy Ouellette's direction for their collaboration."

As an example of one case, McCutchen said, "We showed in a patient with a potentially difficult airway how we could do an inhalation induction and secure the airway with the patient asleep by doing a fiberoptic intubation." Other scenarios included demonstrations of the use of laryngeal mask airways for the delivery of inhaled anesthetics, the advantages of inhaled anesthetics in a patient with asthma, and a detailed walk-through of preparations needed for a patient with malignant hyperthermia.

Ten residents and 10 SRNAs joined in the seminar sequence that took 2 days to shoot in late March. Using an interactive, Socratic method, Eger involved his simulated class in discussions of key principles, which he illustrated on a video monitor with clips from the previously filmed cases.

Olympio detailed the homework for the residents and SRNAs: "Their assignments included 270 questions, one textbook by Dr. Eger, a previous video workbook series on uptake of volatile anesthetics [1988, University of Pittsburgh], in addition to 50 pages of proposed clinical scripts to illustrate pharmacological and clinical applications of the inhaled anesthetics." McCutchen reported that he worked through Eger's draft of the text for this project, a read of "probably 300-350 pages." Initial review of readings occurred at a Journal Club dinner at the Olympios' home in late January.

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Recent Achievements

Dr. Ray Roy, chair, now serves as vice president of the American Board of Anesthesiology.

Dr. Bob Morell became editor of the *Anesthesia Patient Safety Foundation Newsletter*, effective with its winter 2001-02 issue, after having served as that quarterly's associate editor since 1997.

Abstract presenters at the 2002 Gulf-Atlantic Anesthesia Resident's Research Conference were **Drs. Benjamin Antonio, Elizabeth Cavanagh, Angela Edwards, and Matthias König**. Antonio won 3rd place in the Case Report category, and König, 3rd place in the Original Research category.

Dr. David Dewan, Head of the Section on Obstetric and Gynecologic Anesthesiology, gave the Fred Hehre lecture (the keynote address) at the 34th annual meeting of The Society for Obstetric Anesthesia and Perinatology, held in May. Wake Forest University is the only institution ever to have 3 Fred Hehre lecturers. Preceding Dewan were Dr. Frank Greiss, past chair of the Department of Obstetrics and Gynecology, and Dr. Frank James, past chair of this Department.

Drs. John Butterworth, Jim Eisenach, Phil Scuderi, and Ray Roy will present Refresher Courses at the 2002 American Society of Anesthesiologists' (ASA) annual meeting.

Dr. Jim Eisenach will give the 2nd annual Foundation for Anesthesia Education and Research (FAER) Honorary Research Lecture at the 2002 ASA annual meeting. FAER began this lecture last year to recognize outstanding scholarship by clinician scientists in anesthesiology.

NIH Pain Center Established at WFU

By James C. Eisenach, M.D., F.M. James III Professor of Anesthesiology and Principal Investigator for the Pain Center

Effective February 15, 2002, the NIH awarded funds for a Center for the Study of Pharmacologic Plasticity in the Presence of Pain at WFU. The total award will be $6.1 million for 5 years. The purpose of this grant is to study changes that occur in the nervous system which underlie changes in effectiveness of pain relieving medicines. There are 6 main projects in this grant:

1. Plasticity in α2-Adrenergic Agonists (James C. Eisenach, M.D., PI)

Clonidine, a medicine approved in pill form to treat blood pressure, acts by stimulating the α2-adrenergic receptor. When this medicine is injected into the spinal fluid it causes pain relief, and is especially useful (and is FDA approved) in the treatment of neuropathic pain, which is very difficult to treat with NSAIDs or narcotics. Neuropathic pain is a burning, shooting pain associated with nerve injury, often accompanied by painful feelings to normal events, like light touch. This laboratory project uses tissues from animals to understand how clonidine-like medicines become more effective pain relievers after nerve injury.

Pain Lab Researchers, left to right: Rick Li, Ph.D., Carsten Bantel, M.D. (fellowship completed this spring), and Jim Eisenach, M.D., PI for the new NIH Pain Center.

2. Plasticity in Chronic Narcotic Therapy (Steven R. Childers, Ph.D., PI - Phys/Pharm)

In many patients with chronic pain, doctors implant pumps under the skin with a tube going to the spinal fluid in order to give pain medicines more effectively. The most common medicine used is morphine, and often patients become tolerant to morphine, needing bigger and bigger doses over time. This laboratory project uses tissues from animals to understand how the signals which narcotics produce to cause pain relief in the spinal cord change with long-term exposure to narcotics, and how this change might be reversed or stopped from occurring by adding other medicines.

3. Plasticity in Sex Differences (Joseph R. Tobin, M.D., PI - Anesthesiology)

There are very small differences between men and women in pain threshold, the risk of having chronic pain, and in the effectiveness of various pain relievers. One big exception is pain relievers which act to stimulate cholinergic cells in the spinal cord. These drugs are much more potent and effective in women than in men. One such drug, neostigmine, is on the market. I hold a patent with WFUSM for another drug, made by Targacept, which is used in the treatment of female pain. This laboratory project uses rats and tissues from rats to determine why there is this large sex difference–what cells are different between males and females, what proteins are responsible for the difference, and is it simply due to estrogen?

4. Plasticity in Drug Abuse Potential (Thomas J. Martin, Ph.D., PI - Phys/Pharm)

Animals, like humans, will abuse narcotics, and rats that are allowed to self-administer heroin do so rapidly, leading to activation of reward centers in the brain and addiction. Rats after nerve injury, which results in sensitivity to light touch, self-administer heroin in a much different fashion. They won't use small doses of heroin –only doses large enough to remove the sensitivity. This laboratory project studies why there is this difference in "abuse potential" when narcotics are used to treat pain rather than when pain is absent.

5. Human Plasticity (Richard L. Rauck, M.D., PI - Anesthesiology)

The whole purpose of the grant is to better understand how to treat people. Richard, who directs the Piedmont Pain Control Center, directs clinical trials with ideas generated by the above 4 laboratory projects. Studies include how clonidine works in people with chronic neuropathic pain and how it might be made more effective by combination with other medicines; testing new medicines to add in spinal catheters in people who originally got pain relief from morphine, but now are failing this treatment; doing PET scans of the spinal cord of men and women to understand the cause of the sex difference in pain relief from cholinergic-type medicines; and testing new ways to treat patients who are tolerant to large doses of morphine in order to remove the tolerance, reduce the dosage, and get rid of the side effects from these big doses.

6. Medical Education and Outreach (James C. Eisenach, M.D., PI - Anesthesiology)

Two educational and outreach efforts are included in the Center. First, Richard and I are organizing a Pain Consortium which will include over 100 doctors who primarily run pain clinics or treat chronic pain patients in a three state area (Virginia, North and South Carolina). The results of clinical trials from the Center will be presented to this group to try to rapidly spread the benefits from our new knowledge, and to aid in referring appropriate patients to our Center for study and for care. Second, the Center will sponsor a symposium on pain each year at Wake Forest University Baptist Medical Center for medical center personnel and the community. This will include invited speakers who are nationally or internationally recognized experts in the basic science of pain research and in treatment of chronic pain conditions. The first such symposium is being organized by Robert Coghill, Ph.D.–Co-Investigator on one of the projects and in the Department of Neurobiology and Anatomy–and will be held in June 2002.

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http://www.wfubmc.edu/anesthesia

Anesthesia Film Project *(continued from page 1)*

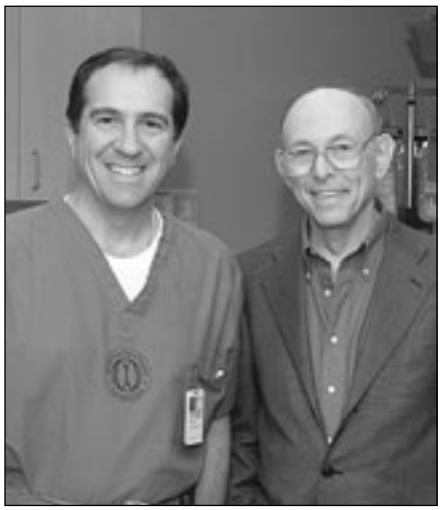
The work offered the chance to hone one's knowledge with guidance from a leader in the field. Zinckgraf stated, "Some of the physics of the way the gases work are not things you use on a daily basis. And so it was an excellent review. There are some things that are counterintuitive that Dr. Eger did a good job of clarifying."

Bosso noted, "Dr. Eger was wonderful, and he definitely demonstrated his extensive knowledge base of anesthesia. He was effective in integrating textbook concepts with clinical practice."

McCutchen added, "I'm one of two residents, basically, in the country who got to go over these scenes in the OR with him, and have the grandfather of inhalational anesthetics explain them to us in person as they were happening in front of us there. Yeah, that's not something that everybody gets to do. So I felt pretty fortunate that I got to be involved with it."

Ouellette was present for some of the seminar filming: "I think the students and residents both did a phenomenal job. They must have had to be there 14 hours those 2 days, sitting in the same chair, wearing the same clothes, and I've never seen a class that looked so attentive that entire time, and it was hot as could be. So I think our hats need to be off to all of them."

Betty Petree, CRNA, Assistant Director of Nurse Anesthesia, remarked on the high quality of the resident and SRNA contributions: "It impressed me—and I think we often take this for granted—that we have two coexisting training programs which are among the best in the nation for each sector. And you could see that by how they answered questions that Dr. Eger asked those respective trainees in the clinical area. They were very good."



DVD collaborators, Dr. Mike Olympio (left), who organized the OR and Patient Simulation Lab shots, and Dr. Ted Eger, author and moderator for the project.

Participants agreed that the DVD and book will fill a definite educational niche. Petree, who has been involved in other filming in the Outpatient area, said, "I think it's one of the first that I've seen in the 28 years that I've been in anesthesia that took the video to the trainee level. Therefore, I think it will be good in both educational arenas [residency and nurse anesthesia] in the United States."

Ouellette stated, "It's the first time to my knowledge that there's been a book totally dedicated to inhaled agents, and that of course is the foundation for all of anesthesia. This is also the first time, that I am aware, that there's been such a comparative analysis made between the agents."

As of mid-April, Roy had "reviewed the entire DVD to help edit out non-relevant, off-the-subject sequences." All told, Roy said, "The DVD, originally projected for 4 hours, has now been extended to 8 hours." Roy observed from the editing desk: "Everyone looks very good. No one is nodding off to sleep. Sequences where people answered questions wrong were generally edited out."

As the editing moves toward completion, participants can look back on the rewards gained from the initial filming. Mike Olympio summed that view: "We think that this entire project has been a reminder of the whole, exciting process of discovery and application of clinical principles."

A Wonderful Match

By Raymond C. Roy, PhD, MD
Professor and Chair

The match this year was one of the most competitive in the last 10 years. Once again we fully matched 10 positions at the clinical base year (postgraduate year one or PGY-1) level and 3 positions at the clinical anesthesia year one (PGY-2) level after interviewing 91 candidates. We also accepted 2 outside the match to bring our total number of new recruits to 15. Ten medical schools in 6 states are represented.

We are very excited to welcome David Barclay (Wake Forest), Wyndee Bess (East Carolina), Wendy Bowman (Medical College of Virginia), Michael Fuller (East Carolina), Michael Jones (Eastern Virginia), Tobin McGowen (Texas A & M), Benjamin Quenzer (Baylor), Wells Reynolds (University of North Carolina), Sophia Seekins (Baylor), and Mark West (East Carolina) as interns who will start July 1, 2002.

We will have to wait until July 1, 2003, for Clint Christensen (Utah, medicine internship in Cooperstown, NY), Marc Donahue, M.D. (Loyola, medicine residency here at Wake Forest), Sherman Lee, M.D., (Wake Forest, U.S. Navy), LaKesha Tables (University of Tennessee Memphis, pediatric internship in Memphis, TN), and Bob Whelan (Wake Forest, surgical internship in Charlotte, NC).

In July 2002 we will have 55 residents–a new record for the total number–10 in the clinical base year and 15 in each of the remaining clinical anesthesia years. There are no current plans to expand the size of the residency in the near future.

New Faculty

The following faculty members joined the Department in January 2002:

Samuel J. Ajizian, M.D., assistant professor in the Section on Pediatric Anesthesiology and Critical Care; M.D., University of Southern California (1989); residency, Children's Hospital Los Angeles (1989-1993).

Jerry R. Clark, M.D., instructor, who will begin a cardiothoracic anesthesiology fellowship in July while continuing part-time in the OR; M.D., Temple University School of Medicine (1991-1997); anesthesia residency, University of Pennsylvania (1998-2002).

Dominic J. (Nick) Cottrell, M.D., instructor while a fellow in pediatric anesthesiology for the first 6 months of 2002; will continue as an instructor during a 1-year cardiothoracic anesthesiology fellowship; M.D. (1992-1996) and anesthesiology residency (1999-2001) at West Virginia University School of Medicine.

Peter H. Pan, M.D., associate professor in the OB Anesthesiology Section; M.D., Eastern Virginia Medical School (1983-1986); anesthesia residency, Shands Hospital, University of Florida (1987-1990), subspecialization in OB anesthesia.

David H. Sprague, M.D., professor of Anesthesiology in the Section of General Anesthesiology; M.D., Albany Medical College (1965-1969); anesthesia residency, Columbia Presbyterian Medical Center (1970-1972); Research Fellowship in Pharmacology, College of Physicians and Surgeons, Columbia University (1972-1973).

M. Nadine van Wyk, M.B.Ch.B., assistant professor in the Section on Pediatric Anesthesiology and Critical Care; M.B.Ch.B., University of Pretoria, South Africa (1988-1993); residency in this Department (1996-2000); Pediatric Anesthesiology Fellowship, Children's Hospital of Boston (2000-2001).

For fuller biosketches on these new faculty, please see the News and Events section of the Department's Internet Web site (http://www.wfubmc.edu/anesthesia).

Electives Distinguish Residency

By Kevin Deinema, M.D., Chief Resident

As another year of anesthesia training at Wake Forest University nears completion, it becomes ever more apparent that I am finally concluding the task my family and I began over 8 years ago. I am sure the rest of my class agrees that time has whisked by faster than we would have anticipated when we first received notice of our acceptance to Medical School. The time at Wake Forest has been memorable and certainly has had the most impact on me professionally. I am proud to be a graduate from Wake Forest University because it is difficult to rival the training we have received.

Wake Forest University maintains its preeminence in the anesthesia community as a top program training residents. This year 12 residents will complete their anesthesia training; 2 will stay for a pain fellowship at Wake Forest, 1 resident will begin a pediatric anesthesia fellowship at Children's Hospital of Philadelphia, and the remaining residents have private practice jobs. Many CA-3s had their futures secured by fall 2001. The favorable job market made finding a job easier, but many of the groups hired Wake Forest residents because they know the quality education we receive during our residency.

I believe the strength of the residency stems from a solid core foundation developed in our first 2 years coupled with the broad selection of electives during our final year. When speaking with residents from other programs, it becomes obvious few have the options we have during our last year of residency. Almost all senior residents elect to take 1 to 2 months of intraoperative transesophageal echocardiography (TEE). Each month-long experience includes performing 2-4 echos per day, a weekly echo conference, and access to the library of echocardiology tapes provided by the Department. The Department encourages residents to take the TEE certification exam, and this year 3 senior residents took the exam in April. The pressure to pass the exam grows annually since no resident has ever failed!

Another popular elective is the regional anesthesia month. This elective is a continuation of the experience gained as a CA-2. During the month-long rotation, each resident will average between 70-90 single injection peripheral nerve blocks, several peripheral nerve catheters, and preoperative placement of lumbar and thoracic epidurals for postoperative pain management. To gain further insight in performing peripheral nerve blocks, Drs.Weller and Gerancher conduct an annual anatomy session in the gross anatomy lab.

Kevin Deinema, M.D., Chief Resident

A new elective this year is a month-long rotation in Dr. Olympio's Simulation Lab. The residents involved with this rotation have been active in writing software for the new ACLS protocol along with creating unusual clinical scenarios/complications. The residents running the lab can make the most seasoned practitioner stumble. While in the "hot seat" performing a simulation scenario, you can almost hear the chuckling behind the one-way mirror prior to "the patient" taking an unexpected turn for the worse.

The Department continues to facilitate residents' involvement with research. This year 8 residents have presented at a national conference. In addition, clinical training abroad remains available. In past years, residents have provided anesthesia in Africa, Turkey, and South America. One of next year's chief residents, Andrew Miller, M.D., went on a medical mission to Bolivia in March 2002.

The reason I chose to come to Wake Forest University for anesthesia was the strength of its clinical training–it has met every expectation. Each year, the Department offers new opportunities to prepare residents to care for the sickest patients having surgery.

GREENBRIER MEETING SET

The Department's eighth annual "Advances in Physiology and Pharmacology in Anesthesia and Critical Care" meeting will take place November 3-6, 2002, at the Greenbrier, White Sulphur Springs, West Virginia. This year's sessions will present recent developments in anesthetic management of the complicated patient, genomics and anesthetic practice, stressors on anesthesia providers outside the OR, pediatric anesthesia, blood transfusion, and pharmacologic therapy.

The special lectures are "Robotic Surgery: 2002," to be presented by L. Wiley Nifong, M.D., Director of Surgical Research and Robotics, East Carolina University School of Medicine; and "The Practice of Exotic Anesthesia," to be given by Mitchell Bush, D.V.M., Chief of Veterinary Services, Smithsonian National Zoological Park.

Alumni receive a 25% discount on registration fees. Participants may earn CME credits for the meeting, as well as for an ACLS course offered November 2-3 at the Greenbrier. For more information, contact Jan Killmeier at (336) 716-2712 or visit the Department's Web site at http://www.wfubmc.edu/anesthesia.

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