When the mind takes leave

New research aims to slow or even prevent Alzheimer’s
The dish on fish You are what you eat, and if you eat a lot of fish, you may lessen your risk of developing Alzheimer’s disease. A clinical trial is under way at Emory and other sites around the country to see if an omega-3 fatty acid called docosahexaenoic acid (DHA) can slow the progression of the disease. “There is a lot of epidemiologic data looking at populations that have lower incidence of Alzheimer’s that suggest a diet high in omega-3 fatty acids may have a positive impact on risk level,” says Emory neurologist James Lah. “We don’t have the final results in, though, so we’ll have to wait and see.” Read more about Lah’s research into Alzheimer’s on page 10.
DEAN’S MESSAGE

IN BRIEF

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NOT QUITE OUT OF THE WOODS
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CLASS NOTES

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Finding our own Ramesh Kumar

COMMENCEMENT IS ALWAYS AN EXCITING BUT BITTERSWEET TIME around the School of Medicine. We are saying “farewell” to the next class of doctors. Before these newly minted doctors disperse around the country to start their residencies, they received some sage advice at commencement that I think our alumni would be interested to hear.

Donald Berwick, president of the Institute for Healthcare Improvement, was our guest speaker at graduation. He is considered to be one of the nation’s leading authorities on health care quality and improvement and has been appointed by President Obama to head the Centers for Medicaid and Medicare Services. (He is clinical professor of pediatrics at Harvard Medical School and a professor in the Harvard School of Public Health.)

Berwick said he doesn’t remember much from his own graduation from medical school several decades ago, so he asked our graduates to remember only one thing: find Ramesh Kumar. Berwick’s story of Ramesh Kumar profoundly changed him. It is one that I will not soon forget.

Ramesh Kumar was a young child that Berwick met on a trip to India while he was in medical school. Kumar was one of many children who lived on the streets, and the extreme poverty experienced by most Indians came as a shock to Berwick. As he walked around the city, he realized that the cardboard boxes on the sides of the streets were people’s homes. On the third day there he burst into tears.

Kumar shined shoes to earn money but offered himself as a tour guide to Berwick. During one of their outings, Kumar took Berwick to see a friend of his. The boy was about 10 years old, and his body was covered in sores from a condition that would be easily treatable in a developed country.

After several days, Kumar asked to borrow the equivalent of $6 and promised to pay the money back. Instead, Kumar ran away when Berwick saw him next. Initially annoyed that Kumar didn’t pay him back, Berwick later realized that the inequities between them settled the score.

Berwick thought that while he enjoyed good health in a developed country, Kumar could likely die from many curable diseases. He did not have the privilege of being born in a developed country.

“It was not my money; it was your money, Ramesh,” Berwick said. “I think he knew that. I thought that maybe he was ashamed to be caught as a thief. But I was mistaken—the shame is not yours, Ramesh; it was mine. So look for Ramesh wherever you go. He won’t be hard to find. He’s everywhere.”

Sincerely,

Thomas J. Lawley
Dean
In Brief

The hidden pop of soda

There may be more than empty calories in that can of soda. A high dietary intake of phosphate—a common additive found in soda and other processed foods—may promote skin cancer, Emory researchers have found.

Phosphate occurs naturally in eggs, beans, and some vegetables, but it is added to many processed foods, such as frozen pizza, deli meats, and ice cream, to improve texture and taste and prolong shelf life.

The researchers applied dimethylbenzanthracene, a carcinogen found in cigarette smoke, to the skins of mice, followed by another chemical that stimulates cell growth. Mice fed a high-phosphate diet had 50% more skin papillomas than mice fed a low-phosphate diet. The high-phosphate diet was the equivalent of 1,800 mg. for people, and the low-phosphate diet, 500 mg. The recommended daily allowance for adults is 700 mg., though their average daily intake is 1,334 mg.

“Phosphate in the diet has been studied previously for its effects on bone formation and bone breakdown, as well as by cardiologists and kidney specialists,” says Emory endocrinologist George Beck. “But outcomes and end points having to do with cancer have not been looked at.”

Beck and his colleagues found that in the presence of high phosphate, bone cells divide more quickly and produce more cancer-related proteins, including osteopontin, a protein linked to the breakdown of bone.

Intestinal bacteria may be helping you pack on pounds

You work out. You watch what you eat, and yet that stubborn spare tire wraps around your waist like a boa constrictor. You can’t get rid of it. A new finding may explain some of your frustration.

Your intestines may harbor bacteria—gut microbiota—that make those extra pounds stay put, says Emory pathologist Andrew Gewirtz.

Gewirtz and his colleagues found that mice that lack a gene called Toll-like receptor 5 (TLR5) were heavier and ate more than regular mice. TLR5’s job is to control bacteria in the intestine. But with low levels of TLR5, intestinal bacteria proliferate, triggering inflammation, which in turn can lead to metabolic abnormalities, such as insulin resistance. Mice lacking TLR5 gained weight and had high cholesterol and triglyceride levels and elevated blood pressure.

“Previous research has suggested that intestinal bacteria can influence how well energy is absorbed from food, but these findings demonstrate that they can actually influence appetite and metabolism,” Gewirtz says. “We don’t think the bacteria are directly making the mice eat more, but the bacteria are causing low-grade inflammation, which causes insulin resistance, which leads mice to increase their calorie consumption.”

The TLR5-deficient mice ate 10% more and were about 20% heavier than regular mice.

“These results suggest that one reason people might be eating more is because of changes in their intestinal bacteria,” he says.

The amount and type of intestinal bacteria has changed over the years due to increased use of antibiotics, cleaner water, and improved sanitation, he says.
In Brief

Better dialysis for pint-sized patients

Things made for adults don’t always fit children.

Take dialysis equipment, for example. For children needing kidney dialysis, doctors are forced to adapt adult-sized dialysis equipment, which can cause complications. But children may eventually have a kidney-replacement device especially for them.

Researchers from Emory, Children’s Healthcare of Atlanta, and Georgia Tech are developing what could be the first FDA-approved kidney replacement device for children. They were awarded a $1 million grant from the NIH to refine a prototype.

“The adaptations doctors are forced to perform make adult kidney replacement devices inaccurate and potentially dangerous when used with kids,” says Emory pediatrician Matthew Paden, the grant’s principal investigator.

“They have invented a new continuous renal replacement therapy device that can be used accurately on a six-pound child all the way up to a football linebacker.”

Adult equipment can withdraw too much fluid from a child, leading to dehydration and loss of blood pressure. The volume of blood required to fill up the tubes leading to and from the apparatus is too large—the smaller the child, the larger the proportion of blood outside the body, Paden says.

The team is testing their prototype in the laboratory and hopes to be ready for clinical trials in five years.

Vitamin D has been called the “sunshine vitamin” since the body makes the nutrient only when it is exposed to sunlight. For African American and Hispanic children, making vitamin D is a bit more challenging. The increased melanin in their skin reduces the body’s ability to make vitamin D. Not surprisingly, recent studies have shown that many children living in the north have low vitamin D levels. But new research has shown that even in sunny climates, African American and Hispanic children are still at increased risk for deficiency.

Emory pediatrician Conrad Cole looked at vitamin D levels in Hispanic and African American children, mostly from low-income families in Atlanta. The average age of the children was 2½ years.

He found that 22% of the children had low levels of vitamin D3, and 74% had less than optimal levels of 25-hydroxyvitamin D. Vitamin D levels were lower in children during fall and winter than spring and summer.

The greatest deficiency was among African American children, 26%, compared with 18% of Hispanic children. More Hispanic children drank milk fortified with vitamin D, which provided most of their needed vitamin D intake, he says.

“Although most young children are known to be deficient in vitamin D, children from low-income families are likely to be at highest risk of developing nutrient deficiencies because of social and economic factors,” Cole says.

New pediatric research building is planned

A new $90 million pediatric research building is expected to open on the Emory campus in December 2012, pending final approval by Emory’s board of trustees. The four-story building will be located on the corner of Haygood Drive and Andrews Drive, across the street from the Emory-Children’s Center. A planned two-story bridge will connect the two buildings.

The 200,000-sq.-ft. Health Sciences Research Building will be largely devoted to pediatrics.
Intraocular lenses for babies carry risks

It’s not an easy feat to put a contact lens in a baby’s eye but a necessary one for parents of infants who have undergone cataract removal surgery and need a replacement lens. A cataract clouds the eye’s natural lens and prevents the eye from focusing. Without a replacement lens following surgery, a baby’s eye would lose its ability to see.

Contact lenses usually are recommended for babies, but for school-age children who develop a cataract, an intraocular lens (IOL) is implanted into the eye because it offers better visual sharpness. IOLs, though, carry a higher rate of complications, and for that reason, ophthalmologists typically don’t use them for infants.

But Emory ophthalmologist Scott Lambert wanted to know if potential risks for IOLs in infants would be offset by a significant improvement in vision. He recently led a national study to determine which treatment for aphakia (absence of the eye’s natural lens) is better for infants who were born with a cataract in one eye. The infants in the study were aged 4 weeks to 7 months.

“Intraocular lenses have become the standard means of focusing the eyes of adults and older children after cataract surgery,” says Lambert. “However, the eyes of babies behave quite differently from adult eyes after cataract surgery.”

In adults, the timing of cataract surgery won’t affect their long-term vision. But delaying surgery in babies can cause permanent vision loss.

Lambert and his team tracked the infants for one year after surgery and found no difference in vision between those with a contact and those with an IOL. However, for IOLs, the rate of complications during surgery was three times higher and additional surgeries, five times higher, than for contacts.

Ophthalmologists plan to test the children’s vision at age 4 to determine if there is a long-term visual benefit to IOLs.

$5 million gift to address fundamental needs

New York philanthropist Margaretta Taylor recently gave $5 million to the medical school to support primary care, student scholarships, and faculty recruitment.

One-fifth of the gift will create an endowment, the Margaretta Taylor Clinician Fund in Primary Care, to support a primary care doctor. Emory internist Sally West has been named the first Taylor Clinician.

The remaining $4 million will be used to name the lobby of the James B. Williams Medical Education Building, help support priorities such as student scholarships, recruitment of clinicians, and retention packages for faculty.

The Williams building was named last year for Emory trustee emeritus James Williams 55C, retired chairman of SunTrust Banks, for his 35 years of service to the university.

Taylor decided to invest in the medical school because of its “great achievements and unlimited potential” in education, patient care, and research, she says.

Behind the scenes

Fred Sanfilippo will step down September 1 as Emory executive vice president for health affairs, CEO of the Woodruff Health Sciences Center (WHSC), and chairman of the Emory Healthcare board. Sanfilippo joined Emory in 2007 from Ohio State University, where he was Medical Center CEO and executive dean for health sciences.

Wright Caughman, director of The Emory Clinic, will serve as interim head of WHSC, while cardiologist Douglas Morris, director of the Emory Heart & Vascular Center, will serve as interim head of the clinic.
Belatacept looks promising for kidney transplant patients

Two-year results from Phase III trials show the experimental immunosuppressive drug belatacept can better preserve kidney function in transplant recipients while preventing graft rejection than the standard immunosuppressive drug cyclosporine, a calcineurin inhibitor.

Though belatacept and cyclosporine have similar graft survival rates at the one- and two-year marks, patients receiving belatacept had higher kidney function and lower blood pressure and cholesterol, according to results from a clinical trial that tracked more than 600 patients. Belatacept also can be given every few weeks compared with calcineurin inhibitors, which are taken twice every day.

Most transplant patients take calcineurin inhibitors to suppress their immune systems and to prevent rejection of the kidney, but the drugs can damage kidneys and lead to high blood pressure and diabetes.

Belatacept inhibits one of two signals T cells require to trigger an immune response. The drug is a modified version of CTLA4-lg, also known as abatecept, which is used to treat rheumatoid arthritis.

Emory transplant surgeons Christian Larsen and Thomas Pearson worked with researchers at Bristol Myers Squibb in developing the drug. Larsen and Pearson found in the 1990s that CTLA4-lg could control graft rejection in mice but worked less well in non-human primates. Researchers at Bristol then found two drug mutations that made CTLA4-lg bind more tightly to its target, and Larsen and Pearson picked up the research from there.

“Today, the median survival of a transplant remains about eight to 10 years, far short of what we’d like,” Larsen says. “While the conventional immunosuppressants are potent, they are associated with multiple toxicities that limit transplant success. We have been working for years to develop new therapies that avoid the main complications and causes of death, including cardiovascular events, infections, and malignancies.”

Bristol Myers Squibb had expected belatacept to be approved by the FDA in May, but the agency has requested three-year data from the Phase III studies to further evaluate long-term effects of the drug. The application submitted included two-year data.

Melatonin’s immediate precursor, N-acetylserotonin, can stimulate the same brain circuits activated by the growth factor BDNF and may provide another route for development of new antidepressants.

N-acetylserotonin (NAS) is produced by the neurotransmitter serotonin and is converted into melatonin with the help of several enzymes. NAS was thought to have no other function than acting as a precursor to the production of melatonin, but an Emory research team has shown that it stimulates the same circuits in the brain activated by BDNF (brain-derived neurotrophic factor). A lack of BDNF, which pushes brain cells to grow and helps them resist stress, is thought to lie behind depression and several neurodegenerative diseases.

The researchers, led by pathologist Keqiang Ye and pharmacologist Michael Iuvone, are looking for chemicals that mimic BDNF by activating TrkB, the receptor for BDNF on cells’ surfaces.

Several widely prescribed antidepressants (selective serotonin reuptake inhibitors such as fluoxetine/Prozac) increase levels of serotonin in the brain, but the connections between serotonin levels and depression are complex. Because antidepressants seem to take weeks to display their effects, scientists have proposed that their real targets are BDNF and TrkB.
Heart’s fat layer may help predict disease

The amount of fat around the heart can provide useful clues to help determine the need for further testing for heart disease, particularly compared with standard diagnostic tests such as coronary artery calcium scoring.

The standard coronary artery calcium scoring shows the location and extent of calcified plaque in the coronary artery, but Emory researchers are learning that it’s the non-calcified plaques that indicate trouble. They found that fat tissue was highest in patients with non-calcified plaques. Fat tissue around the heart is of concern because it secretes relatively large amounts of inflammatory hormones.

“Release of inflammatory factors from the fat tissue around the heart may be promoting an active atherosclerotic process, and this is indicated by the presence of non-calcified plaques,” says Paolo Raggi, director of Emory’s cardiac imaging center.

Though the heart’s overall coronary calcium buildup is a good predictor of heart disease, calcium in an individual plaque doesn’t necessarily mean imminent trouble, Raggi says.

A CT or MRI can measure the volume of fat tissue around the heart. “This information can be used as a ‘gatekeeper,’ in that it could help a cardiologist decide whether a patient should have a nuclear stress test,” he says.

In another Emory study, fat tissue around the heart was measured in patients receiving a nuclear stress test. These patients had chest pain but were not known to have heart disease. The nuclear stress test showed that ischemia correlated more closely with the volume of fat tissue around the heart than with the coronary calcium score.

A treatment for fragile X may be on the horizon

Emory researchers are testing what may be the first drug therapy intended to address the complex learning and behavior problems associated with fragile X syndrome.

Fragile X syndrome is caused by a genetic mutation that inhibits the production of the protein FMRP, which regulates the amount of other proteins produced in the brain. The absence of FMRP leads the glutamate receptor mGluR5 to trigger the overproduction of synaptic proteins, resulting in the learning and behavior problems characteristic of fragile X.

“The drug we are testing is an mGluR5 antagonist, which puts a brake on the mGluR5 activity,” says Emory geneticist Jeannie Visootsak, principal investigator of the study. “In mouse and fruit fly models, we were able to improve cognition with this antagonist.”

The gene for fragile X was discovered in 1991 by Emory human genetics chair Stephen Warren. He led a team that discovered the mutated gene on the X chromosome, and later that year, another Emory team helped develop a screening test.

Fragile X got its name because under a microscope, a portion of the X chromosome appears “broken” or “fragile.” Fragile X syndrome is the most common cause of inherited mental impairment.
In the movie *The Hurt Locker*, Sergeant William James comes home from serving in the Middle East and struggles to re-adjust to the relative calm of everyday life. Standing in an aisle at the grocery store, he stares for a long time at endless rows of cereal boxes, overwhelmed by the magnitude of a mundane choice.

The movie scene shows the complexity of transitioning from the battlefield to home life for veterans. They can’t sleep. They’re jumpy and irritable. They avoid public places. Often, they won’t sit with their back to a door or drive under an overpass. They fight to quash their memories of their time in Afghanistan or Iraq.

One treatment for traumatized veterans, who are often diagnosed with post-traumatic stress disorder (PTSD), takes them back to the last place they want to go, the battlefield, via virtual reality (VR). In as few as six sessions with a VR program, many veterans are getting their old life back.

The program uses a computerized Iraq scenario that is tailor-fitted to the veteran’s personal experience, says its creator, Barbara Rothbaum, director of Emory’s Trauma and Anxiety Recovery Program and a professor in the psychiatry department. The veteran wears a helmet that allows him to see and hear the video scenario, such as riding in a Humvee or walking on foot patrol. The therapist sits with a computer screen and keyboard, adding specifics that mimic what the veteran is relating of a particularly troubling incident—time of day.
or night, presence of smoke or fog, the smell of burning rubber or gunpowder. The veteran hears the Humvee’s motor, the voices of fellow soldiers crackling over the radio, and roadside bombs. (The scenario can give a visitor a taste of the sheer intensity of combat, with soldiers yelling in the Humvee and over the radio, helicopters flying overhead to provide air cover, guns firing, all at almost true-to-life decibel ranges.)

For many veterans who use the VR program, a roadside bomb is what “sent them to their hurt locker,” as the military saying goes. If a comrade is injured or killed, they often are swimming in survivor’s guilt.

“It’s a lousy disorder to have,” Rothbaum says of PTSD. “VR isn’t a cure for PTSD, but we can get them to the point where it doesn’t interfere with life. I tell them, ‘You can’t ever be like you were before. You’ve had a life event that’s changed you.’ They have to go back to the experience over and over but in a therapeutic way to emotionally process what happened. There is no way to the other side except through the pain.”

Veterans with PTSD often wrestle with the notion of control, says Maryrose Gerardi, an Emory psychologist who also uses the VR program. “They are told in the military, ‘If you do your job, the mission will be successful.’ One of the things that is hard to deal with for them is that they can do everything right, and bad things will still happen. They say, ‘I should have done something different.’ I’ll ask them what specifically they could have done differently in those circumstances. Often they reach their own conclusion that they did everything possible. They can honor the memory of what happened by processing it and eventually getting some peace with it.”

More than 65 veterans have been treated with VR and have had positive results. It is offered to veterans of Iraq and Afghanistan free of charge. The Department of Veteran’s Affairs and the Department of Defense also use Rothbaum’s VR for treatment of PTSD. One Navy psychiatrist took the VR program to Iraq and treated soldiers there, says Rothbaum.
When the mind takes leave
New research aims to slow or even prevent Alzheimer’s

By Martha Nolan McKenzie | Illustrations by Judy Reed Silver
In the century since German physician Alois Alzheimer discovered the disease that bears his name, scientists have untangled many of the mysteries of the brain disorder. They have identified the unique pathology of plaques and tangles within the brain that characterize Alzheimer’s disease. They’ve pinpointed brain chemicals involved in the disease’s progress. What researchers have not been able to uncover, however, is a cure or even a terribly effective treatment.

“The treatments we have now for Alzheimer’s are Band-Aids,” says Emory neurologist James Lah. “They treat symptoms but don’t touch the underlying pathology. At best, they slow the progression of a disease that typically spans a decade by about six months.”

Lah and his colleagues are working to change that. Lah is leading a team of researchers in several late-stage clinical trials testing promising disease-modifying therapies. In other words, instead of treating the symptoms, they attack the underlying disease process. He has no illusions that his current work will yield a cure, but he hopes to find a treatment that can significantly slow the disease’s debilitating progress.

“When you say word ‘Alzheimer’s’ to someone, they have an image of somebody who is tremendously debilitated, unable to recognize family members, paranoid, confused,” says Lah. “But many patients are not like that. In fact, if you met someone who was just having beginning symptoms, you may not be able to tell that they have Alzheimer’s at all. If we can delay the progression of the disease by five to 10 years, they may have some difficulty with their memory, but they can appreciate interactions with their grandchildren, enjoy their vacations and hobbies, and never really reach that devastating late stage of the disease before they die of something else.”

Such a treatment can’t come soon enough. More than 5 million Americans have Alzheimer’s, a degenerative disease marked by memory loss and cognitive impairment that is linked closely with age. The risk of developing the disease doubles every five years after the age of 65, and by age 85, up to 30% to 40% of people will develop Alzheimer’s. With the great wave of baby boomers approaching the Alzheimer’s prone years, experts expect an unprecedented swell in cases in the next few decades.

“It’s really staggering,” says Allan Levey, chairman of the department of...
neurology and director of Emory’s Alzheimer’s Disease Research Center. “We see a tsunami coming. World-wide there are 35 million people with dementia, most of whom have Alzheimer’s disease. By 2030 that number will almost double, and by 2050, it’s projected to be 115 million. It will take a devastating economic as well as personal toll.”

**Gene therapy**

Emory is one of 12 universities participating in a nationwide study testing the effectiveness of an experimental medication, CERE-110. In Phase 2, it is the first gene therapy clinical trial for Alzheimer’s.

The CERE-110 trial seeks to prevent or slow the death of brain cells in Alzheimer’s patients by delivering a protein called nerve growth factor (NGF) directly to the affected area of the brain. Lah, who is the principal investigator of the trial, hopes NGF will act like its somewhat notorious kin, erythropoietin, or EPO. A trophic factor that boosts the growth of red blood cells, EPO has been the publicized culprit in cyclist doping scandals.

While EPO promotes the growth and health of red blood cells, boosting an athlete’s performance, NGF nourishes a specific population of brain cells that deteriorate in Alzheimer’s. These cells produce acetylcholine, which plays a vital role in memory and cognitive function. If NGF can keep these cells alive and healthy, then levels of acetylcholine won’t drop as dramatically, leaving memory and cognition intact.

“We’re very early in the trial,” says Lah, “but decades worth of data from rodent models and non-human primates suggest that this therapy can be effective.”

In the trial, a neurosurgeon will inject CERE-110 directly into the area of the brain where neuron death occurs, the nucleus basalis of Meynert. The CERE-110 will deliver the gene for the protein NGF packaged inside an adeno-associated virus (AAV).

“These adeno-associated virus vectors are very safe,” says Lah. “They are very small and can’t reproduce themselves. They can be manufactured in advantageous ways so you can deliver a lot of what you want to deliver in a very small volume.”

After the AAV delivers the gene to the cells, researchers believe the cells then will begin to make NGF from that DNA. Once it does, the cells should continue to churn out NGF indefinitely.

“Once the gene is turned on, it should keep making NGF for the rest of the patient’s life,” says Lah. “We don’t know that for sure, but animal models have shown that production continues for years.”

While current therapies try to stop the chemical breakdown of acetylcholine, CERE-110 holds out the promise of keeping the cells that make the chemical healthy. “This is one of the most exciting first steps to rescue brain cells that we know are important in memory and thinking and that deteriorate in Alzheimer’s disease,” says Levey. “This trial is also important from the perspective of potential of surgical approaches to brain diseases. If a surgery works, it’s a one-time intervention, rather than having to take a pill every day. The CERE-110 trial is a different way to think about how to deliver therapies to the brain and could lead to other therapeutic approaches down the road.”

**A vaccine for Alzheimer’s?**

Researchers have long been interested in developing a vaccine to immunize people against Alzheimer’s, and indeed, animal vaccine trials in the 1990s were so encouraging that a human trial was launched in 2001.

The vaccine targeted a naturally occurring brain protein called beta-amyloid. Usually harmless, this protein accumulates to excess in the brains of Alzheimer’s patients and sticks together to form one of the distinguishing features of the disease, plaques. These plaques build up between nerve cells, blocking communication between them and eventually causing cell death.

In animal trials, the anti-amyloid vaccine proved highly effective in two ways. In animals that already had signs of the disease in their brain, the vaccine slowed down and in some cases even reversed the pathology. In animals whose brains did not have any signs of disease, the vaccine prevented...
or drastically retarded disease onset. Similar results were expected in the human trial, although researchers knew there was a risk that using a live vaccine could provoke an autoimmune response. That is, in fact, what happened. In about 6% of the patients in the study, the immune system not only attacked the beta-amyloid in brain cells but also those in the blood vessels. This caused encephalitis, a life-threatening swelling of the brain, and the study had to be stopped.

So Lah and his colleagues are putting a different spin on the earlier human trials by using preformed antibodies, much like those used to treat people bitten by a rabid animal. “It’s called passive immunity because you’re not triggering the immune reaction in your own body,” says Lah, who is co-principal investigator of the trial. “Instead you are delivering antibodies that are made elsewhere and using that as a tool to clear out something you don’t want to be there.”

Even though no live vaccine is being used, the study participants are being closely monitored with brain imaging. The downside to this treatment, if it proves effective, is that patients would need to get regular infusions of the antibody throughout their lifetime. Lah is not particularly worried about that eventuality, however. “If I had Alzheimer’s, I’d do it!” he says.

**Early detection**

As promising as the CERE-110 and vaccine therapies are, they still suffer from a major drawback that affects all Alzheimer’s treatments. “The big problem with all therapies is that they’re getting to the party too late,” says Lah.

Though Alzheimer’s is thought of as a disease that typically spans a decade, its actual course is closer to 30 years. By the time the first mild symptoms of memory loss appear, the disease already has been wreaking havoc in the brain for about 20 years. If physicians could catch the disease earlier, treatments would stand a better chance of being successful.

“It’s just like with cancer,” says Lah. “If we identify cancerous lesions early—say, if we catch a small lump in the breast—we can cure you. But if we wait and let it spread, that breast cancer is probably going to kill you.”

Accordingly, Lah and his colleagues are trying to identify brain imaging methods that may show the presence of the disease before symptoms appear. They are actively developing biomarkers that could alert physicians to the presence of Alzheimer’s, much like the prostate specific antigen can signal prostate cancer.

In addition, Lah has developed an inexpensive, brief screening test for mild cognitive impairment (MCI), which is often the earliest stage of Alzheimer’s. Traditional Alzheimer’s screening tests are impractically lengthy at 40 to 60 minutes of formal cognitive testing, which is far beyond the average of 15 minutes that a physician spends with a patient. While these tests are very good at detecting dementia, they pick up MCI only about half the time.

The test Lah and his team developed combines a three-minute cognitive screening test, dubbed the Mini-Cog, and a brief functional activities questionnaire that is filled out by a spouse or someone close to the patient. The results were impressive. Lah says that the test picked up MCI about 80% to 85% of the time, and it picked up MCI plus undiagnosed dementia closer to 95% of the time. Researchers are in the process of validating the results now. If it holds up, this would be a very inexpensive, quick tool physicians could use to screen for early stages of memory loss.

“To tackle the epidemic that is coming down the road, early detection is absolutely critical,” says Levey. “Physicians don’t have the time or the expertise that is needed to really screen their patients. A simple, quick screen would be a big advantage and could identify Alzheimer’s earlier when treatments are more likely to be effective. Lah’s work in this area has been tremendously important.”

Lah is optimistic about the future. “If things go reasonably well, about 20 years from now we should be able to identify the disease earlier and apply treatments that can modify the progression of the pathology,” he says. “I always tell my patients, ‘If I keep your brain working until you are done using it, and you drop dead of a heart attack, then I win and the cardiologist loses.’”

—Allan Levey
For some people with severe depression, what works for everyone else doesn’t work for them. Talk therapy, drugs, and electroconvulsive therapy have given them no relief. But a new treatment may mean that they are not at the end of the road.

While typical therapies for depression usually provide a partial reduction in symptoms, deep brain stimulation has the potential to provide complete remission. Emory psychiatry and neurology professor Helen Mayberg, psychiatrist Paul Holtzheimer, and neurosurgeon Robert Gross are leading a clinical trial to determine whether a pacemaker-like stimulation implant in the brain can give severely depressed patients motivation to function and live a full life.
Mayberg started this research in 2002 with a small sample of patients at the University of Toronto. She moved to Emory to continue the work with a larger group in collaboration with Holtzheimer and Gross.

Some of the first patients treated with deep brain stimulation (DBS) have shown remarkable improvement, researchers say. Though she's optimistic, Mayberg is quick to caution against inferring too much from the early findings.

"Brain stimulation technology is still quite crude," Mayberg says. "The implant itself is big, like a pacemaker. I'd like it to be miniaturized, but for now, it's not. And people need to know that the technology is not proven or generally accepted. The research is experimental."

"From age 23 to 26, I'd been on pretty much everything and tried ECT. I couldn't sleep at night because I'd lay in bed and think of everything I had done wrong that day. I would go to sleep, then wake up around 2 or 3 in the morning, disappointed that I woke up, disappointed that I was still alive." —Brian

While using DBS to treat depression is new, DBS itself is not. DBS was first developed in 1987 and has been approved by the FDA for treatment of essential tremor and Parkinson's disease.

"We did a proof-of-principle study in Canada on six people who had failed a minimum of four types of treatments for at least two years," Mayberg says. "These patients had no options except to continue mixing medicine with no real hope that it would work. These people were beyond suicidal. Many people who have this degree of depression are apathetic enough to wish they were dead but have no plan or intent to commit suicide."

As a rule, the surgery to implant the stimulator is not offered to anyone who has not tried various antidepressant medications and electroconvulsive therapy (ECT). And it is only for patients stuck in a major episode of depression, not ones who are chronically up and down.

The Emory team enrolled its first patient in the clinical trial in January 2007. She was a woman in her 40s whose depression had left her so disabled she had to move back in with her parents. She had been treated by a psychiatrist and had tried several medications, as well as ECT, to no avail. Since then, the team has implanted the stimulator in 16 other patients, most of whom have seen at least some improvement.

"There is nothing more gratifying than seeing patients recover who have been this ill," says Mayberg. "If you've been this ill for several years, the world has passed you by. Where do you start when you get your life back? That's a huge issue for us, and it will take some serious rehabilitation. The stimulator keeps you in a rhythm, but we then have to proceed to retrain them or get them used to the pace of today's life. It's just like when you have a hip replacement surgery. You get a new hip, but you still need physical therapy."

**Brian's Story**

Brian, who did not want his last name used, was 26 when he became one of Emory's first deep brain stimulation patients in 2007. He had tried medications and ECT and was on the verge of trying vagus nerve stimulation surgery (VNS) when he decided against it at the last minute. (During VNS surgery, a stimulator is implanted in the chest. It sends electric impulses to the brain via the left vagus nerve in the neck. DBS sends electric impulses directly to the brain.)

His depression started when he was a teenager, and over the years, he was hospitalized a half dozen times in different hospitals. He was no longer on medication.

"From age 23 to 26, I'd been on pretty much everything and tried ECT," he says. "I couldn't sleep at night because I'd lay in bed and think of everything I had done wrong that day. I would go to sleep, then wake up around 2 or 3 in the morning, disappointed that I woke up, disappointed that I was still alive." He'd been in a deep depression episode since at least 2004, when he quit his job because he could no longer function. The depth of his depression was stunning to him.

"All I could do was get out of bed and go to the kitchen. It didn't matter what I would eat because it all tasted the same," he said at a recent Emory University class on depression. "I only ate so I wouldn't end up at the hospital. I would lay on the couch all day in front of the TV, not caring what was on, then go to bed."

According to both Brian and Holtzheimer, Brian likely would have tried to kill himself if he could have mustered the energy to do so. The depression had drained his energy to the point where walking 50 feet down a hallway would take five minutes.
and leave him exhausted.

Brian’s depression wasn’t normal, even for depressed people. His was treatment-resistant depression, which occurs in roughly 1% of Americans.

“It’s important to note that depression is not just profound sadness,” Holtzheimer says. “It’s a complex syndrome, a combination of symptoms. Brian has a treatment-resistant major depressive disorder, and our goal for these patients is remission, which means no symptoms. Most treatment is only likely to get a certain percentage of improvement due to the design of the studies. Unfortunately, very little research is being done on treatment-resistant depression, and 20% of the depressed population is resistant to treatment. This form of depression, clinically, is very different from depression that responds to treatment, and we think it is physiologically different too.”

**STIMULATING THE WHITE MATTER**

For most of Brian’s eight-hour surgery, he was awake. Gross, the team’s neurosurgeon, implanted an electrode on each side of the brain. The electrotrodes were connected to a 2- x 3-inch battery unit that was implanted into the chest. The battery unit sent electrical impulses to specific parts of Brian’s brain.

“We test stimulation at four contact points on each side of the brain to assess for positive and negative behavioral effects. We want to know which contact points are optimal for chronic stimulation. This is done in the operating room so we can potentially move the electrode,” Holtzheimer says.

The battery generally lasts up to five years, at which time a 30-to-60-minute surgery is needed to replace it. When the battery dies, patients slowly begin regressing to their depressed state within two to four weeks. Once a new one is implanted, the patient tends to improve rapidly.

Early on in the study, Mayberg and her team—first in Canada, then at Emory—saw signs that chronic stimulation of white matter tissue tracts adjacent to the subcallosal cingulate gyrus (also called Brodmann area 25 of the cerebral cortex) was associated with a marked and lasting remission of depression. Mayberg’s earlier research in patients with treatment-resistant depression patients has shown that their subcallosal cingulate region is overactive. In addition, the region’s connections to the brainstem, hypothalamus, insula, and frontal cortex are linked to changes in sleep, appetite, libido, and cognitive functioning—often characteristic of depressed patients.

The more direct stimulation of DBS is putting patients into complete remission, unlike VNS. While VNS studies also aimed to put patients into remission, their response rates were low. (At present, VNS is the only FDA-approved treatment for patients with severe, treatment-resistant depression.) “Compared with VNS, the response rates with DBS seem higher,” Holtzheimer says. “But DBS studies so far have been preliminary, so it’s too early to adequately make a comparison. Our next step will be longer, double-blind, placebo-controlled trials.”

**BRIAN IMPROVES**

Within a matter of months, Brian began to feel better. Now, three years after the surgery, he is still in remission. He fights occasional self-esteem issues, but he’s hopeful for the future, feels good, and experiences life’s ups and downs the way they are supposed to be felt, he says.

Brian is evaluated regularly by his Emory team and had to undergo another procedure when the battery in his implant died. “This is an expected event after two or three years,” Holtzheimer says. “That’s one of many reasons we keep tabs on how patients are feeling.”

“**It’s important to note that depression is not just profound sadness. It’s a complex syndrome, a combination of symptoms.** —Paul Holtzheimer

The Emory team is hopeful that unlike ECT, which isn’t a one-time permanent fix, deep brain stimulation will work for a lifetime for those who respond. “We want to expand and refine what we started but also learn more about depression and how we can optimize the treatment,” Mayberg says. “My research lab is focused on what goes wrong in the brain that causes depression and how to identify findings from brain imaging that might help us best prescribe a treatment that improves the likelihood of getting well—be it psychotherapy, medication, or in rare cases, DBS. No one should have surgery unless there are no other options. It’s safe and relatively straightforward as far as brain surgery goes, but it is brain surgery. Like I said, though, nothing is more gratifying than seeing patients who were this ill begin to recover.” EM
Physicians need to pay close attention to the heart health of pediatric cancer survivors

Emory endocrinologist Lillian Meacham knows that there usually comes a time when children bald from chemotherapy will begin to regrow their hair. Eventually a family who’s grown accustomed to waiting rooms can go back to work and school. They can focus, again, on life.
Meacham 84M 88MR has seen this scenario play out many times over since mortality rates for pediatric cancer have plummeted in recent decades. Now 80% of pediatric cancer patients are cured.

That rising cure rate is not the whole story though, says Meacham, an Emory pediatrics professor and medical director of the Cancer Survivor Program at Aflac Cancer Center of Children's Healthcare of Atlanta. In recent years, she and other researchers in the relatively new field of cancer survivorship have been looking at what happens to pediatric cancer survivors in the years after the completion of cancer therapy, in the decades after life goes back to normal.

“I've always said that our goal in cancer survivor work is to make these people as normal and healthy as possible and to improve their quality of life,” Meacham says. “In survivorship we try to be sure they can be as healthy as possible either by preventing long-term consequences or detecting them early and intervening.”

Now Meacham and her colleagues have completed another round of detection work with large implications for childhood cancer survivors. What they found in work published in the January issue of Cancer Epidemiology, Biomarkers & Prevention was that these survivors have significantly increased risk for heart disease.

“Risk factors are manifesting in adults in their early 30s, which is much earlier than a non-cancer survivor would exhibit signs of cardiovascular risk factors,” says Meacham.

Meacham directed the research study from her office, decorated with pictures of her own daughters, now young adults, and with a flock of the stuffed ducks now synonymous with the Aflac name. Her report uses data from the Childhood Cancer Survivor Study, a decades-long project following thousands of former pediatric cancer patients, many of whom are now in their 40s and 50s. Fellow paper author and Emory oncology epidemiologist Ann Mertens ran that study during its first phase. For this paper, Mertens and Meacham collaborated to compare 8,599 survivors’ adult health with the health of a group of almost 3,000 of their cancer-free siblings.

“We found that survivors were more likely to have high blood pressure, elevated lipids, and diabetes,” Meacham says. The risk wasn’t just incremental in nature. “They were 90% more likely to have high blood pressure and to be on a medication for hypertension, 60% more likely to be on medication for elevated lipids, and 70% more likely to have diabetes.”

—Lillian Meacham

90% more likely to have high blood pressure and to be on a medication for hypertension, 60% more likely to be on medication for elevated lipids, and 70% more likely to have diabetes.

Together, these three conditions and obesity make up metabolic syndrome and increase an individual’s risk of heart disease.

In all, that cluster of risk factors has made cancer survivors as a group highly susceptible to heart attacks and strokes—and at such young ages that many doctors don’t screen patients for those health issues.

The findings also show that not all cancer treatments are created equal when it comes to long-term effects on cardiovascular health. While chemotherapy doesn’t appear to directly increase risk of metabolic syndrome, exposure to radiation showed a particularly potent link to diabetes, hypertension, and high cholesterol. Says Meacham, “If survivors had been exposed to total body irradiation or irradiation to the chest or abdomen, they were much more likely to have these risk factors.” Total body irradiation was linked with a 5.5-fold increased risk, while radiation directed toward the chest and abdomen led to a 2.2-fold increased risk.

Researchers including Meacham still don’t know why radiation in children is associated with greater cardiovascular risk as they age. Meacham speculates that radiation affects body organs in ways not yet understood—and is hopeful that future studies will clarify that impact. If doctors can understand radiation’s long-term impact on a molecular level, they may be able to minimize the risk while enhancing the benefits of radiation treatments.

In the midst of these sobering findings, Meacham did see one piece of good news: Obesity, another major risk factor for heart disease, wasn’t any more prevalent among pediatric cancer survivors than among their siblings. In both groups, just more than 1 in 5 participants were obese.

Now, as further research continues, Meacham is spreading the word that physicians need to pay close attention to the heart health of pediatric cancer survivors. And she hopes these latest findings trickle down to national guidelines for treating adult cancer survivors. “In survivors, we need to start screening and be active much earlier,” she says.

By Dana Goldman | Illustration by Marci Roth
LVAD Therapy: A Successful Alternative for End-Stage Heart Failure

Despite treatment advances, the long-term survival rate of patients with end-stage congestive heart failure remains quite dismal. Currently in the United States, more than 3,100 people are awaiting a heart transplant—40 here in Georgia. And while transplantation is a proven therapy, the number of heart transplants performed in the U.S. each year is limited to approximately 2,200 due to a shortage of available organ donors.

Left ventricular assist devices (LVADs) have been in use for more than 25 years, primarily in patients who are awaiting transplantation. In 2003, the HeartMate XVE® pulsatile LVAD (Thoratec Corporation) became the first device to be approved by the U.S. Food and Drug Administration (FDA) as “destination therapy” in end-stage heart failure based on the results of the landmark REMATCH trial.

Emory University Hospital has been at the forefront of VAD therapy, implanting its first device in 1988 and more than 65 devices since then. Emory implanted its first device as destination therapy in 2006.

Continuous Flow: The Next Evolution in LVAD Therapy

A study published in The New England Journal of Medicine in December 2009 demonstrated that continuous-flow LVADs significantly improved the probability of stroke-free survival and decreased the probability of device failure at two years compared with a pulsatile-flow LVAD in patients with end-stage heart failure who were ineligible for transplantation. In addition, patients who received the continuous-flow device had an actuarial survival rate at two years of 58 percent versus 24 percent for patients who received the pulsatile-flow device (figure 1).

The continuous-flow HeartMate II® LVAD (Thoratec Corporation) received FDA approval in January 2010 as destination therapy for patients with end-stage heart failure who are ineligible for transplantation. (figure 2) The Emory VAD destination therapy program has implanted more than 25 HeartMate II devices to date.

More recently, HeartWare International introduced the continuous-flow HeartWare® LVAD system. Because the device is implanted above the diaphragm, directly adjacent to the heart, both surgery and recovery times are minimized. Already approved in Europe as a bridge to cardiac transplantation, the safety and efficacy of the HeartWare LVAD are currently under investigation in the U.S. in the ADVANCE trial, a crucial step toward securing FDA approval for the bridge-to-transplant indication. Emory University Hospital is one of approximately 30 registered ADVANCE trial sites and has implanted one device to date.

The Emory VAD Team

Led by world-renowned cardiothoracic surgeon J. David Vega, MD, the VAD team has many years of experience using VADs as destination therapy for individuals who are ineligible for or are unwilling to undergo heart transplantation. Other team members include cardiologists Andrew L. Smith, MD, and S. Raja Laskar, MD, and cardiothoracic surgeon Duc Nguyen, MD.

To refer a patient or to speak to one of the VAD program physicians, please call 404-778-5273.
1960s

Charlie Williams Jr. 62C 66M 74MR of Daphne, Ala., was elected president of the medical staff of the VA Gulf Coast Health Care System.

1970s

Lee Mabee 76M received the 2009 Young at Heart Award from the South Dakota State Medical Association for inspiring young physicians as a role model and mentor and encouraging them to become involved in community projects.

1980s

Arthur Kellermann 80M, former associate dean for health policy in Emory’s medical school, recently started a new position with the RAND Corp. in Washington. He is spearheading its Public Heath Systems and Preparedness Initiative, helping state and federal agencies improve preparedness for public health emergencies. RAND is a not-for-profit that seeks to improve public and private policy.

He joined Emory’s faculty in 1993 as founding director of the Center for Injury Control (CIC), a collaborating center for injury and violence prevention of the World Health Organization.

Kellermann began studying gun-related violence as a resident at the University of Washington. The death of Motown singer Marvin Gaye provided the initial spark for Kellermann’s research. “I was sitting in the student center when the radio news show reported that Marvin Gaye had been shot by his father,” he said. “I looked at my friend across the table and said, ‘This is nuts. Surely somebody has looked at a gun in the home as a risk factor or a protection factor for violent death.’ ”

But he could only find one study on the subject. Later, his research showed that homicides occurred in homes with guns much more often than in homes without firearms, and family members were much more likely to be the victims rather than an intruder.

That research garnered him a lot of attention—and some of it unwelcome. A right-wing magazine at the time called Kellermann an “anti-gun fanatic” who was responsible for the anti-gun hysteria in America. Though he advocated keeping guns out of the home, he never called for an outright ban.

He went on to be the founding chair of the emergency medicine department at the medical school and later, the school’s first associate dean for health policy. He played a leading role in calling attention to health care policy in Georgia and in the United States. A member of the Institute of Medicine, Kellermann co-chaired its Committee on the Consequences of Uninsurance and played key roles in its efforts on the future of emergency care and national biosurveillance systems.

William Chey 86M 89MR, a gastroenterologist at the University of Michigan Health System, has been appointed incoming co-editor-in-chief of the American Journal of Gastroenterology.
Class Notes

1990s

Thomas Connolly 95M of Jacksonville, Fla., was elected secretary-treasurer of the Northeast Florida Pediatric Society.

BORN: Auden Grace to Jennifer Burger 98M 99MR and husband Josh Greenbaum on April 2, 2010. She joins brother Al- den. Jennifer is a dermatologist in Atlanta, and Josh is the director of data services for Emory’s development and alumni relations office.

2000s

Jeffrey Brewster 00M recently started a new position as a pediatric intermediate care physician at the Medical Center of Columbus Regional Healthcare System in Columbus, Ga.

BORN: Benjamin Hollis to Marguerite “Tresa” Allen-Chappell 98Ox 00C 04M and Clay Chappell 04M on Jan. 29, 2010. Tresa is a pediatrician in Alpharetta, Ga., and Clay is a cardiology fellow at Emory.

Residency Notes

Ilene Brennar (emergency medicine) recently authored How to Survive a Medical Malpractice Lawsuit.

Steven Bailey (ophthalmology) married Catherine Floyd on June 27, 2009. He is an assistant professor at the Casey Eye Institute of the Oregon Health & Science University.


David Redding (internal medicine) and his twin brother, Alan, opened a new practice in Atlanta, the Redding Allergy & Asthma Center.

alumni news

BORN: Jaya Marie to Arun Mohan 06B 07M and his wife, Carmen, on Dec. 16, 2009. Arun is in a primary medicine residency at Cambridge Hospital in Cambridge, Mass.

BORN: Benjamin Hollis to Tresa Allen-Chappell 98Ox 00C 04M and Clay Chappell 04M on Jan. 29, 2010. Tresa is a pediatrician in Alpharetta, Ga., and Clay is a cardiology fellow at Emory.

BORN: Jaya Marie to Arun Mohan 06B 07M and his wife, Carmen, on Dec. 16, 2009. Arun is in a primary medicine residency at Cambridge Hospital in Cambridge, Mass.


David Redding (internal medicine) and his twin brother, Alan, opened a new practice in Atlanta, the Redding Allergy & Asthma Center.

Deaths

1930s

James Stewart 38M of Glenwood, Ga., on Oct. 17, 2009. He was 96. He was past president of the American Society of Abdominal Surgeons and was a member of the American College of Surgeons, the Georgia Medical Association, and the Middle Georgia Medical Association. He is survived by a son, two grandchildren, and two great-grandchildren.

1940s

Herbert Bondurant Jr. 40M of Atlanta, on Aug. 22, 2009. He was 93. He was an orthopedic surgeon in private practice for 45 years and served as a clinical professor at Emory for many years. He is survived by his wife, Virginia, four children, and four great-grandchildren.

William North 40M of Mobile, Ala., on Jan. 20, 2010. He was 98. He served on the board of directors of Mobile General Hospital as it transitioned from a county hospital to USA Medical Center of the University of South Alabama. He is survived by his wife, Loraine, five children, and eight grandchildren.

Alva Letton 41M of Atlanta, on Jan. 13, 2010. A surgical oncologist, Letton was past president of the American Cancer Society (ACS). ACS credits him with being instrumental in getting the Pap smear accepted by women and their doctors back in the 1950s. In 1971, Letton stood beside President Richard Nixon as he signed the National Cancer Act, which established regional cancer centers. (In 1971, there were no centers; today there are more than 40.) Letton continued to serve ACS as a volunteer and was the first volunteer to reach the 50-year mark. In 1991, he founded the Atlanta Cancer Center and was director of one of the first three breast cancer detection projects. He also served as director-secretary of the Southeastern Surgical Congress and as chair of public relations for the Fulton (County) Medical Society. He was a founder of the Georgia Biomedical Partnership and was appointed to the Georgia Science and Technology Committee and the Governor’s Science Advisory Board. He also served as a clinical professor of surgery at Medical College of Georgia. He is survived by his daughter and grandson.


Edwin Walker 44C 46M of South Bend, Ind., on April 5, 2009. He was 86. He is survived by his wife, Kathleen, and six children.

Marvin Dees 49M of Mansfield, Ohio, on March 12, 2010. He is survived by a daughter, son, grandson, and great-granddaughter.

1950s

Earnest Atkins Jr. 44C 51M 52MR 59MR of Alexandria, Va., on March 22, 2008. He was 85. He is survived by five children.

Joseph Benson 48C 52M of Wetumpka, Ala., on Dec. 18, 2009. He retired from his practice in 1990 after 40 years. He served on the Wetumpka City Council, the Elmore Community Hospital Board, and as the Elmore County coroner.
Alumni News

Deaths

Arthur Gray 49C 53M 57MR of Rome, Ga., on Jan. 3, 2010, following an extended illness. Gray served as chair of the surgical staff and president of the medical staff at both Floyd Medical Center and Redmond Regional Medical Center. When he began at the hospitals in 1958, there were no residents or emergency department doctors so Gray had to respond to all emergencies when he was on call. He later helped create the trauma center at Floyd Medical Center and served as medical director of Region 1 EMS (16 counties in northwest Georgia). He was appointed associate professor of family and community medicine at Mercer University. He is survived by his wife, Edith, three children, and 12 grandchildren.

Joe Bussey 50C 54M 55MR of Fort Worth, Texas, on Jan. 26, 2010. He was a rancher for 47 years. He is survived by his wife, Anne, two children, and six grandchildren.

Pete Rhymes 56M of Santa Fe, N.M., in January 2010. He practiced orthopedic surgery in Mississippi, Texas, and Louisiana before retiring to Santa Fe in 2001. He is survived by his wife, Beverly, seven children, 10 grandchildren, and one great-grandson.

William Hardman 59M of Lake Wales, Fla., on April 6, 2010. He was an obstetrician and gynecologist for 51 years. He is survived by his wife, Mimi, and three children.

William Stone 45D 64M of Atlanta, on Feb. 7, 2010. He was 88. He practiced dentistry and medicine. He is survived by his wife, Charlene, three children, 14 grandchildren, and three great-grandchildren.

Ephraim Bassey 76MR 79MR

David Fetters 69M of San Francisco, on Oct. 28, 2009. He was 62. He was retired from the U.S. Navy after a career in nuclear medicine.

1970s

William Vanderyt 74M 75MR 76MR 79MR of Doraville, Ga., on Nov. 9, 2009, of brain cancer. He was 60 and an orthopedic surgeon. As an undergraduate student at Cornell University, he served as pacesetter for the school’s champion eight-man crew team. In 2009, one year into retirement, he decided to take up rowing again. In January, he began working out at home on a rowing machine. By June he competed in three events at the Southeast Regional Championship Regatta in Aiken, S.C. His team won two gold medals and one silver. He is survived by his wife, Janice, and three sons.

1980s

James Hazlehurst 82M of Chico, Calif., on Nov. 5, 2009, of brain cancer. He served in the Navy for 12 years, including the first Gulf War in 1990, as an ophthalmologist and flight surgeon. After his service, he opened the Chico Eye Center. He retired in January 2005 after learning he had a malignant brain tumor. He is survived by his wife, Helen, and five children.

1990s

James Anthony (surgery) of Stone Mountain, Ga., on Aug. 16, 2009. He served as chief of surgery at DeKalb General Hospital, was president of the DeKalb Medical Society, and served on the board of medical examiners. He is survived by his wife, Helen, and five children.

Ephraim Bassey (nephrology) of Mableton, Ga., on Aug. 24, 2009. He was born
in Nigeria and worked as a pharmacist in Lagos before graduating magna cum laude from medical school at the University of Bonn, Germany. He founded Atlanta South Nephrology and served as medical director for three dialysis clinics. He is survived by his wife, Patricia, and four daughters.

**Thomas Boswell** (internal medicine) of Ball Ground, Ga., on Nov. 28, 2007. He was 85. He served rural communities in three north Georgia counties. He is survived by his wife, Jean, a son, three daughters, and 12 grandchildren.

**John Cheatham** (ophthalmology) of Rancho Santa Fe, Calif., on Nov. 2, 2009. He was 68 and suffered a heart attack while climbing Kennesaw Mountain in Georgia. Beyond his residency at Emory, he never practiced ophthalmology in the United States. Shortly after his residency, he moved abroad to work in developing countries. He never owned a home, a car, or cell phone. His possessions consisted only of a closet of items that he stored at his mother’s home in Atlanta.

Cheatham’s journey to medical school also took a different path. After graduating from George-town University, he earned a commercial pilot’s license and then worked as a bush pilot in Africa, New Guinea, and near the Amazon rainforest. He and his sister made a 2,500-mile trip down the Amazon River in a dugout canoe.

He returned to the United States and earned an MBA degree from Columbia University. During his late 30s, he realized he wanted to be a doctor, though at the time, medical schools considered him to be too old to be admitted. He spent a decade trying to get into medical school. He bought medical books and taught himself. He passed Part 1 of the national medical boards before he enrolled in medical school.

He was finally admitted to the Medical College of Georgia and was able to bypass all premed courses. During recent years, he had climbed Mount Kilimanjaro and made 50-mile hikes in the Grand Canyon.

In June 2009, he married his longtime partner and coworker, Anne Schlueter. He is survived by her, his mother, a sister, and two brothers.

**Max Clayton** (anesthesiology) of Tucson, Ariz., on May 12, 2009. He was 76.

**Leslie Johnson** (radiology) of Burlington, N.C., on Aug. 18, 2009, of Alzheimer’s disease. He is survived by his wife, Barbara, and daughter.

**Richard Johnson Sr.** (internal medicine) of Atlanta, on Jan. 18, 2010. He practiced at Piedmont Hospital for 40 years, during which he served as chief of the medical staff from 1986 to 1988. After retiring in 1993, he served for 16 years as a consultant for the disability determination service of the Social Security Administration. He is survived by his wife, Nancy, eight children, 15 grandchildren, and seven great-grandchildren.

**Norman Lavy** (hematology) of Westfield, N.J., on Oct. 7, 2009. He was 78. He was a professor of medicine at Robert Wood Johnson University Medical Center. From 1966 to 1987, he was vice president and director of drug regulatory affairs at E.R. Squibb & Sons. He is survived by his wife.

**Howard Liss** (pulmonology) of Jerusalem, in 2007. He worked at Hadassah University Hospital, the largest health care system in Israel. He was on faculty at Wright State University from 1985 until at least 1990. He is survived by a daughter.
John E. Skandalakis 62G, a faculty member for more than 30 years, died of leukemia on Aug. 29, 2009. He was 89. “Dr. Skan,” as he was known to his colleagues and medical students, taught surgical anatomy.

Born in 1920 in Sparta, Greece, Skandalakis earned his medical degree from the University of Athens in 1946. He fought in the Greek resistance during WWII and hid two Jews under the altar of his neighborhood church. After WWII, he fought in the Greek Civil War (his older brother was killed, his remains found decades later) before immigrating to the United States in 1951. He completed his residency and fellowship at Grady Hospital, St. Joseph’s Infirmary, and Piedmont Hospital.

In 1956 he began working jointly as an instructor in anatomy at Emory—receiving his doctorate in anatomy from Emory in 1962—and at Piedmont as director of surgical education, a program he initiated that allowed Emory surgical residents to rotate through the hospital.

Skandalakis founded the Thalia and Michael Carlos Center for Surgical Anatomy and Technique at Emory in 1984 and the Alfred A. Davis Research Center for Surgical Anatomy and Technique in 1990, serving as director of both until his death. In 1996, the John E. Skandalakis Professor of Surgery Chair was established in his honor at the School of Medicine.

Among his 300 publications were three highly regarded books, *Embryology for Surgeons*, *Anatomical Complications in General Surgery*, and *Surgical Anatomy and Technique: A Pocket Manual*, which have been translated into numerous languages and are still referenced. He was a fellow of the American College of Surgeons, a founding member of the American Association of Clinical Anatomists, and a member of the Georgia Board of Regents from 1981 to 1988, during which he was instrumental in the founding of the Georgia State University’s law school. He was honored with membership in the prestigious Academy of Athens in 1992 and received the Distinguished Medical Achievement Award from the School of Medicine in 1999. In his later years, Skandalakis was an international lecturer on anatomy.
Death of a groundbreaking Emory doctor

Arnall Patz 43C 45M, whose pioneering research prevented blindness in countless premature babies, died on March 11. He died in his sleep at his home in Pikesville, Md. He was 89.

He was revered for his discovery that giving premature infants high doses of oxygen could cause blindness. The oxygen, he found, destroyed the eyes’ arteries, causing an overgrowth of blood vessels that permanently damaged the retina. At the time, about two-thirds of all cases of childhood blindness were caused by an overgrowth of blood vessels, or retinopathy of prematurity (ROP).

Patz’s belief that the oxygen could cause damage was considered a dangerous idea in the late 1940s. When he applied for an NIH grant to run a study, he was turned down for ethical reasons. “These guys are going to kill a lot of babies by anoxia [inadequate oxygen] to test a wild idea,” one grant reviewer wrote, according to the Baltimore Jewish Times.

Patz later borrowed money from his brother, Louis, to run a study, which found that 7 of 28 babies who received high doses of oxygen experienced severe ROP. None of the group receiving low oxygen doses had damaged eyesight. With these results, Patz was able to design a trial involving 18 hospitals. It was the first controlled trial in ophthalmology, and its data changed the course of treatment for premature babies. When the old treatment of ROP was dropped, the number of blind children in the United States immediately dropped by 60%.

For this work, he shared the Lasker Medical Research Award, dubbed the “American Nobel Prize,” with Everett Kinsey, a biochemist who helped organize a larger study, in 1956.

The early years

Patz was born June 14, 1920, in rural Elberton, Ga. After graduating from the School of Medicine, he joined the Army and served at the Walter Reed Army Medical Center. There, he decided that he wanted to be an ophthalmologist.

In 1950, he moved to Baltimore, where he married Ellen Levy. They raised five children. When Louis Patz and his wife were killed in a plane crash in 1962, Arnall and Ellen raised their three children.

The family owned a cabin in Maine, 15 miles down a dirt road, next to a lake. There, Patz perfected his fly-fishing techniques. He became so talented that he eventually was banned from participating in the American Ophthalmology Society’s annual fly-fishing contest.

At age 78, he earned a master of liberal arts degree from Johns Hopkins. One of his papers explored how Beethoven’s progressive deafness affected his music.

Patz is survived by his wife, Ellen, and a daughter, Susan, and three sons, William, David, and Jonathan, eight grandchildren, and his brother’s children that he and Ellen raised: Samuel, Harry, and Sarah Anne.

In 2007, the School of Medicine inaugurated a lifetime achievement award in Patz’s honor. The recipients of the Arnall Patz Lifetime Achievement Award are selected by committee for their accomplishments in medicine, significant contributions to medical research, or exceptional commitment and dedication to the medical school. The award is given each fall during alumni weekend. The 2008 recipient was John Inman 45M, and David E. Clapham 79G 81M received the 2009 award.
Papageorge Teaching Award
The Emory Medical Alumni Association awarded internist Joyce Doyle the Evangeline Papageorge Distinguished Faculty Award. Medical Alumni Association President Ramon Suarez presented the award to Doyle during the medical school’s commencement on May 10. Suarez said the Class of 2010 selected Doyle because “she leads by example and always puts the patient first. She reminds students that patients are human beings.”

Doyle has served on the faculty since 1994 and is based at Grady Hospital. She directs the internal medicine residency program and serves as a society adviser.

Papageorge taught biochemistry at the medical school for 30 years before becoming the first dean of students and first female administrator of the school. She retired in 1975 and died in 2001.

Papageorge’s current-day counterpart, J. William Eley 79C 83M 86MR 89FM 90MPH, executive associate dean for medical education and student affairs, received the Emory Williams Teaching Award.
AS A RESIDENT at Atlanta’s Grady Hospital in the 1960s, William Hardman 52Ox 54C 66MR moonlighted to support his young family. Grady paid its residents just $100 per month before taxes.

Today he is retired after nearly 40 years of medical practice. As an obstetrician and gynecologist, he delivered countless babies and helped patients through the difficult diagnosis of cancer. In the 1970s, that diagnosis hit home: his wife, Vesta, developed ovarian cancer.

Because of advances in research and patient care, she has been cancer-free for 30 years.

In gratitude, the Hardmans support clinical trials at Emory. To help future generations of pre-med students avoid debt, the couple is creating a scholarship fund through a life income gift, their own unique contribution to Campaign Emory.

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Plan to invest in hope.
You watch what you eat, and yet that stubborn spare tire wraps around your waist like a boa constrictor. Those stubborn extra pounds may be the result of intestinal bacteria, says Emory pathologist Andrew Gewirtz. For more on his research, read page 3.