the biggest difference—from the smiling faces at the information desks to the friendly escorts who help patients find their way from one department to another. Auxiliary volunteers are present wherever patients or their families need support—from the Infusion Suite to the Emergency Department. They offer art therapy, play music, and deliver flowers and books.

Bingo: Volunteers also run a weekly bingo game—piped in to every patient room over closed-circuit TV. That effort alone entails assembling 250 packets of game supplies, emceeing the game itself, and then delivering prizes to the winners.

One of the most unusual volunteer jobs at DHMC was conceived and filled by chemistry professor John Amsden when he retired from Dartmouth. He set up shop as a Medicare consultant for patients when the program began in 1966. His model was later promulgated to hospitals nationwide by the federal agency that oversees Medicare.

Among the Auxiliary's newer programs are two that require special training of volunteers: Befriend, which offers peer support to patients with breast cancer, and No One Alone, which serves patients in the palliative-care program.

Work: "We now take for granted what we have in DHMC," says Blough. "I'd like people to realize the long period of development." She knows there's no magic wand—and that the success of the *next* 75 years depends on today's hard work.

Rosemary Lunardini

DHMC's Auxiliary was born of a tradition called Donation Day, when local farmers dropped off harvest surplus, which was fed to patients through the winter. On this early Donation Day, the Hospital lawn is piled with boxes and bushels of produce.

In 1934, the Auxiliary purchased a book cart, which volunteers wheeled around to patients in their rooms.

In 1968, the Auxiliary opened the Pink Smock Gift Shop. Here, Mary Burke and Betty Jordan ring up an early sale.

MARK WASHBURN

Today, the Auxiliary raises over $300,000 a year and fields 500-some volunteers. Barbara Blough, right, the organization's current president, and the late Foster Blough, left, were named Quarter-Century Volunteer Honorees earlier this year.

THEN & NOW

A reminder of the pace of change, and of timeless truths, from the Fall 1977 issue of this magazine:

Dr. Maurice Costin, DMS Class of 1940, shared some recollections of Dr. William Bodwell, Class of 1909. Their paths had crossed "when Dr. Costin set up his practice in Framingham [Mass.] in 1948 and over the years they exchanged stories of their days in Hanover. Dr. Costin [wrote in 1977] that 'Dr. Bodwell . . . used to have several jobs while working his way through Dartmouth. They included barbering, bartending, washing dishes, waiting on tables, helping Dr. Gilman Frost deliver calves on his farm, and taking care of Professor Emory's horses.'"

2

Number of students in the DMS Class of 2009 who grew up on a farm

THEN & NOW

A reminder of the pace of change, and of timeless truths, from *The Journal of William Tully*—a diary kept during 1808-09 by a Dartmouth medical student.

On November 29, 1808, Tully wrote in his diary about a lecture by DMS founder Dr. Nathan Smith. Smith "mentioned the importance of anatomy and physiology," called "the benefits of chemistry . . . inexhaustible," and said "botany is likewise of immense importance," Tully wrote. And, he went on, Smith told his students such knowledge "is also essential to private gentlemen," not just those studying medicine, because "a man who does not understand [science] appears like an ass in everything."

4

Number of science courses required in 2008 to earn a bachelor of arts from Dartmouth College

A blue-light special—in the brain

Each year, about 20,000 Americans find out that they have a cancer that originated in their brain. For most of them, the outlook is grim.

Rapid: High-grade brain tumors—known as gliomas—progress rapidly and usually result in death within a year. Even less-malignant gliomas can cause death or disability, and they sometimes progress into high-grade tumors.

Treatment typically includes surgical removal of the tumor. The more of it the surgeon can remove, the longer the patient is likely to survive. Take out too little, and survival time goes down. But take too aggressive an approach, and the result can be a loss of normal tissue—and thus brain function.

It would help, says Dr. David Roberts, chief of neurosurgery at DHMC, if it were easier to tell where the tumor ends and normal brain tissue begins. "It's the kind of thing we've often had on our wish list," Roberts says. "Wouldn't it be nice if everything were color coded?" Thanks to research he is conducting with Dr. Keith Paulsen, a professor at Dartmouth's Thayer School of Engineering, surgeons may soon get their wish.

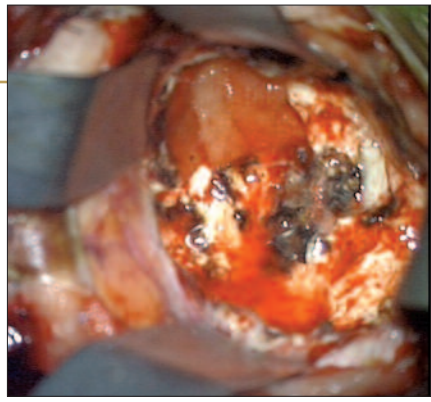
Team: Roberts and Paulsen have collaborated for years on developing cutting-edge technologies to improve surgical outcomes. "I work with Keith more closely than I do with most of my medical colleagues," says Roberts. "We're part of the same team." In 2007, they began their current project, a five-year clinical trial designed to improve the resection, or surgical removal, of gliomas by using fluorescence to highlight tumor tissue.

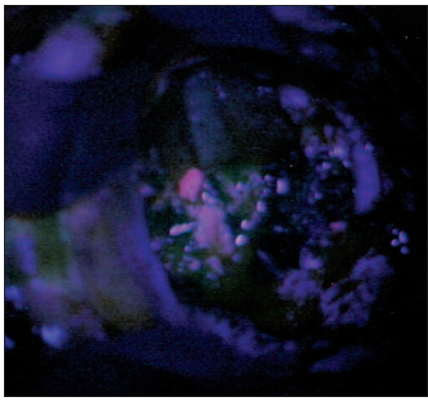
The trial takes advantage of a reaction that occurs between tumor cells and a chemical called 5-amino levulinic acid (5-ALA). The chemical causes tumor tissue to fluoresce under blue light, but it does not react with normal tissue.

Glowing: Three hours before their operation, patients enrolled in the study drink a glass of water containing 5-ALA. Then during surgery, Roberts can take advantage of the effect by flipping a switch on the operating microscope to change the light shining on the patient's brain from white to blue. The result is a pink, glowing tumor. "It looks like lava," says Roberts. When Paulsen first saw the effect in the operating room, he was "flabbergasted."

When Paulsen first saw the effect in the OR, he was "flabbergasted."

Six patients have undergone surgery using 5-ALA so far, and 18 more will be enrolled during the initial stage of the trial. During this phase, Roberts and Paulsen hope to gain a better understanding of how the fluorescence works and how best to take advantage of it. For one thing, Paulsen says, he'd like to develop a means of quantifying the brightness of the fluorescence, which would give surgeons even more information about whether certain tissues are part of the tumor. "I think it's only scratching the surface of what's possible," he says.





Above is the same brain tumor—first as seen through a regular operating microscope (top) and then as seen under a blue light that causes the tumor to fluoresce and turn pink (bottom).

Stage: Midway through the five-year study, a second phase will pit the procedure against tumor resections done without fluorescence. This randomized stage of the trial will address important questions—such as whether using fluorescence leads to more complete resections and longer survival times.

Roberts and Paulsen have a lot of work still ahead of them, but they're clearly impressed by the technology. "It's like looking through a telescope for the first time," says Roberts.

Amos Esty

SIGHT FOR SORE EYES: Over 100 Dartmouth medical students volunteered at 14 area nonprofit organizations on DMS's fourth annual Common Good Day in October—doing school vision tests, clearing trails, singing at a local senior home, and much more.

When bad things happen to a "good person"

"He slides and he's *fast*," says Dr. Daniel Herz, a pediatric urologist at DHMC. Herz is describing the means of locomotion used by one of his patients—two-year-old Phung Thien Nhan, who has only one leg. The boy "will throw his good leg out, and his arm," explains Herz, "and he'll scoot and slide on the floor."

Mauled: Thien is like a whirlwind as he gets around—an apt metaphor for his tumultuous but amazing young life. His 17-year-old mother abandoned him at birth in July 2006, in a jungle in central Vietnam's Quang Nam province, leaving him under a pile of papaya leaves. Three days later, some local villagers found him. He'd been mauled by an animal and was barely alive; his genitals and most of his right leg were gone and his wounds were covered with insects.

His rescuers rushed him 60 miles to the nearest hospital, where doctors saved his life. They amputated his leg at the hip and did initial urethral surgery so he could keep his urinary function. At the hospital, some visiting Buddhist monks gave him the name Thien Nhan, meaning "good person."

But the doctors couldn't afford to keep him, so they returned him to his mother's family, where he was neglected and undernourished and had to forage outside for his own food.

Yet Thien was soon a minor celebrity in Vietnam; his story touched many people, including Greig Craft, president of the Asia Injury Prevention Foundation. He looked into the situation and learned that the boy had just been adopted by a Vietnamese journalist and her husband—but they needed help with Thien's expensive long-term surgery.

The baby was abandoned under a pile of papaya leaves in the jungle.

Craft knew Dr. Joseph Rosen, a DHMC plastic surgeon, from Rosen's medical missions to Vietnam. Rosen and Dartmouth teams travel regularly to Hanoi to train surgeons there. (For more about Rosen's work in Vietnam, see page 60 in this issue, as well as **dartmed.dartmouth.edu/summer07/html/vs_hanoi.php**.)

Craft asked Rosen if he would oversee Thien's care—several more genital surgeries over the next 10 to 15 years, plus eventually the fitting of a robotic leg. Rosen agreed. They arranged for Thien to come to DHMC in August 2008 so Herz could perform a urethral dilation—widening the boy's urethral opening and stitching it to his skin to hold it open. The surgery was funded by private donors recruited by Jennifer Ames, the OR operations manager at DHMC.

Older: The boy also traveled to the Rehabilitation Institute of Chicago while he was in the U.S., to be evaluated for a robotic prosthesis that he'll get in Vietnam when he is older.

Rosen and Herz are confident that Thien will be able to receive the rest of his care in Vietnam—including urethral and penile reconstruction and the fitting of the robotic leg. While the boy was at DHMC, Herz determined that his existing urethra is healthy and extends all the way to his bladder, which will make grafting a urethral tube—built with tissue from inside his cheek—much easier. "He defies a little bit of logic," says Herz, who is "surprised that he's always in such good spirits."

Sojourn: The boy and his adoptive mother and father stayed with Ames during the family's sojourn in the Upper Valley. Thien and Ames's teenage son soon became fast friends. "They went out on our front lawn," she recalls, and "were ripping up the grass and throwing it. . . . By the time they came back in, . . . Thien was calling my son 'brother' in Vietnamese.

"It's a miracle that he survived," she adds, "but it's a miracle that he is the child he is, to be so loving and trusting." For more on his compelling story, see **www.help-thien-nhan.blogspot.com/**.

Matthew C. Wiencke

Jennifer Ames, left, checks on Phung Thien Nhan before his DHMC surgery, as the boy's adoptive father holds him.

THEN & NOW

A reminder of the pace of change, and of timeless truths, from the 1902 DMS *Circular of Information*:

"Applicants for admission to this School must have (a) graduated from a registered college, or (b) satisfactorily completed a full course in a registered Academy or High School, or (c) have had a preliminary education considered and accepted as fully equivalent."

$110
Annual Dartmouth Medical School tuition in 1902

$438
Average annual household income in the U.S. in 1900

$210
Fee to take the Medical College Admission Test at a U.S. test site in 2008

3.7
Average undergraduate GPA of first-year students in 2008