

A CUT ABOVE: The Children's Hospital at Dartmouth is the only medical center in the United States to have two pediatric neurosurgeons who research brain trauma in children, according to the director of the program, Dr. Ann-Christine Duhaime.



Surgical stencil: A simple but inventive idea

Dr. Lori Alvord is used to getting attention for being the first woman Navajo surgeon. But she wants to leave a legacy that goes beyond that. "I don't want to be niched into one corner," she says. So she's decided to become an inventor—in addition to her roles as associate dean of student and multicultural affairs at DMS and a general surgeon at DHMC and the DMS-affiliated VA in White River Junction, Vt.

She recently received a patent for her first invention, a sort of stencil for laparoscopic surgery. In laparoscopy, a small incision of less than half an inch is made, usually in the abdomen, and a tunnel is cut through the body to the site in need of surgery. That tunnel, which is lined with a tube, serves as a pathway for the tiny instruments that the surgeon will operate with from outside the body.

While the instruments and tubes are specific sizes, says Alvord, surgeons "just look and guesstimate" how long to make incisions in the skin. "What we should be doing is making them just the right size," she says.

Seal: If an incision is too small, the surgeon may try to force the instruments through, injuring adjacent tissues. If an incision is too big, that can cause problems, too. "The way we look at everything inside," Alvord explains, "is we pump carbon dioxide into

the abdomen to distend it . . . [so] we have a little place to work." If there's not a good seal between the skin and the tube, air can leak out, making the surgeon's workspace inside the body smaller than is optimal.

Alvord's stencil design has openings that correspond to specific instruments and sizes. It also has longer slots that can be used for non-laparoscopic incisions, which most surgeons also do freehand. The idea behind the stencil is "so amazingly simple,"

Children's Hospital at Dartmouth mascot is "as real a dinosaur as one will ever see"

There have been recent reports of a big, blue, very friendly dinosaur wandering around the Children's Hospital at Dartmouth (CHaD). This six-foot-tall creature is named Chad A. Saurus—Chad for short.

According to local folklore, a CHaD-a-saurus egg—dating back to the Cretaceous period, roughly 100 million years ago—was found in a big block of ice near DHMC in the early 1990s. A CHaD staff member cared for the egg until it hatched and then raised the baby dinosaur in a secret location at the hospital. The dinosaur liked the place so much he decided to make it his permanent home. These days, he's often spotted socializing in and around CHaD.

The CHaD-a-saurus has a few wranglers who take him on walks and make sure he behaves so he doesn't accidentally frighten anyone. Among them are Jonathan Strutt, Kari Vandenburg, and Sarah Farley—all second-year Dartmouth medical students. They accompany Chad when he visits hospitalized children or rep-

resents CHaD at special events, such as the Dartmouth business school's Tuck Run for the Kids; local March of Dimes fund-rais-

ers; and CHaD family nights sponsored by the Fisher Cats, a minor league baseball team in Manchester, N.H.

"The kids are so excited when they see him," says Sharon Brown, CHaD's director of community relations. In fact, she adds, people of all ages "respond with such glee" when the dinosaur makes an appearance.

Chad's favorite activities include doing arts and crafts projects, dancing, visiting patients, and playing hide-and-seek with doctors and nurses. Chad's wranglers are sometimes asked who's inside the dinosaur suit, and they assure all questioners—even inquisitive reporters—that Chad is as real a dinosaur as one will ever see.

There is no reason to fear the CHaD-a-saurus, they emphasize. He's an herbivore, so he eats mostly grass and small plants—but that means he must be monitored around DHMC's flower beds and shrubbery.

And he loves ice cream, too. So kids had better watch their ice cream cones carefully when the friendly blue creature is around! L.E.



The CHaD-a-saurus and his handlers, on the Dartmouth Green.

MARILEAF PHOTOS



JON GILBERT/FOX

Alvord has just gotten a patent on an innovative stencil for surgical incisions.

she admits with a laugh. “But remember . . . the Post-it note!”

To develop the stencil, and the other surgical inventions for which she’ll seek patents, Alvord has been working with Hanover, N.H.-based NeoVention. She located the company through the Dartmouth Entrepreneurial Network, which helps Dartmouth faculty, staff, and students bring ideas to the marketplace. NeoVention is led by two graduates of Dartmouth’s Thayer School of Engineering, Katherine Hickey and Amish Parashar. Now that they have a patent for the stencil, they’ll create a prototype and shop it around to manufacturers.

Outside: “Discoveries often occur when someone from one discipline walks into a world of someone else’s discipline,” says Alvord. “That’s why it’s kind of neat” to be working with an interdisciplinary team. She believes that “being a person from the outside” has helped her see opportunities for surgical innovations. “Both as a woman and as a minority,” she says, “looking at things through the lens of a different culture may be part of the reason why I sometimes see things that need to be fixed.”

JENNIFER DURGIN

Pediatrics program is no CLIPP off the old block

Virtual patients—computer simulations that allow medical students to practice their clinical skills—have been around nearly as long as computers. But for all the technological sophistication in the rest of medicine, medical educators have struggled to effectively integrate simulations into the curriculum.

But a web-based pediatrics training program created by Drs. Norman Berman and Leslie Fall of DMS has shown it can be done. Their Computer-assisted Learning in Pediatrics Project (CLIPP), just three years old, is being used by 70 of the 125 U.S. medical schools. Berman and Fall, associate professors of pediatrics, received the Innovation in Clinical Medical Student Education Award from the Association of American Medical Colleges’ Northeast Group on Educational Affairs.

CLIPP is “the most successful of the electronic case systems that I know of,” says Dr. Suzanne Stensaas, a professor of neurobiology and anatomy at the University of Utah and organizer of a workshop on multimedia in medical education. The program has solid technology, but its real strength is that its creators generated ownership among potential users—pediatrics clerkship directors. “Anyone can write software,” says Stensaas. “What they can’t do is get the darned physicians to take the time to put in the information. And they can’t get people to use it.”

The clinical scenarios in CLIPP mimic life. Students in-

terview and examine patients, order tests, consult experts, make diagnoses, and recommend treatments. After completing the simulation, students are tested on the material.

CLIPP appeals to clerkship directors because its 31 peer-reviewed cases are based on the curriculum established by the Council on Medical Student Education in Pediatrics. Most other clinical simulations reflect an author’s particular interests or meet a specific need, which limits their use, says Stensaas. In contrast, Fall and Berman invited clerkship directors from across the U.S. and Canada to participate in developing the cases.

Track: Berman believes new accreditation standards—which require schools to offer a consistent educational experience and show evidence of what students learned—have also contributed to CLIPP’s success. “Medical schools have to figure out how to do that. CLIPP solves that problem,” he explains, because it is standardized and can track student progress and results.

Despite its popularity, CLIPP faced a potential crisis a few months ago when its grant funding ended. The program had been offered at no charge, but the lack of funding made it necessary for CLIPP to start charging schools.

Fall and Ber-

man turned to the Dartmouth Entrepreneurial Network for guidance in setting up a not-for-profit company to market CLIPP. In addition, DMS’s dean, Dr. Stephen Spielberg, pledged to support CLIPP if it didn’t garner enough initial subscriptions. But to Berman and Fall’s happy surprise, 70 of the 80 schools that had been using CLIPP when it was free subscribed to the fee-based program.

CLIPP’s creators are now looking to develop similar programs for other specialties. There is also an initiative in the works to use CLIPP data for medical education research—studies that could potentially meet the same quality guidelines as clinical research, says Fall. She would ultimately like to apply what she and Berman have learned to creating CLIPP-like tools to prepare first-world physicians for working in developing countries.

The support from Dartmouth has been vital, say CLIPP’s creators. “We’ve been able to incubate this here,” says Fall, “in a way that maybe wouldn’t be possible at some other institutions.” (See www.clippcases.org/ for details.)

TAMARA STEINERT



More than half of the nation’s medical schools use CLIPP.