

CLINICAL OBSERVATION

In this section, we highlight the human side of clinical academic medicine, putting a few questions to a physician at DMS-DHMC.

Robert Gougelet, M.D.

Assistant Professor of Medicine (Emergency Medicine)

Gougelet, who's been at DHMC since 1999, is the medical director for emergency response. He also heads a Boston-based disaster response team that has traveled all over the world—including to New Orleans in the wake of Hurricane Katrina.

What made you decide to become a physician?

I wasn't sure I was going to be a physician when I started college. But as I took courses, I kind of kept going toward medicine. I do have a love for the biological sciences. I volunteered in the emergency room every Friday night for three or four years in college. I also did EMT training when I was 18 and volunteered at my local fire department as an EMT for many years—and later

became that fire department's medical director.



What famous person, living or dead, would you most like to meet?

I would say the Dalai Lama. He has this peaceful nature, but there's this incredibly political aspect to his life. I'd like to understand a bit more about how he balances that out.

If you could live in any time period, when would it be?

I would like to have a glimpse of the future, 50 years ahead or so. I'd be interested to see how things are working out politically, what kind of shape the world is in then, what medical technology is like, what's the role of doctors.

What's your favorite nonwork activity?

Going to canoe camp with my family; we do that once a year. Also, when I have time, fixing things around the house and working on the cars. I don't get much time for that, but I enjoy it.

What country would you most like to travel to and why?

China has always fascinated me. I understand that some places there are absolutely beautiful, such as the canyons along the Yangtze River where they're building a dam and they're going to flood all these villages built into the rock—I'd like to see them before they disappear forever.

Do any events in your career stand out?

I think the earthquake in Bam, Iran, was the most significant—the politics of it, the enormity of it. Certainly it was the most horrible thing I've seen ever. The other one of particular importance was responding to the New York City anthrax attacks and treating several thousand postal workers. I learned a lot from both of those.

What new technologies are you involved with?

We're working with several groups on developing a new foam technology that could decontaminate patients much better than water and soap. This has enormous potential. There are also new ways to track patients and communicate during disasters—all the command and control issues in how medical teams coordinate with law enforcement and fire control. Obviously the focus now is on terrorism.

What are your greatest frustration and greatest joy?

The greatest frustration in my work is politics. We're working in a very difficult field right now, with enormous potential consequences, and yet we have to deal with politics, territories, egos, and things like that. It's very unbecoming of people who work in this field. I think the most satisfying thing, at this point in time, is our efforts here at DHMC. There's been a significant amount of attention regionally and nationally to preparing for mass casualties, and we should be proud of the fact that some of the work we've done here is being used in other places.

What about you would surprise most people?

I used to be a TV repairman. When I was in high school, a family friend owned a TV repair shop and I worked after school fixing TVs.



Student from Serbia brings ultrasound to his homeland

Getting an ultrasound, MRI, or CT scan—technologies taken for granted in industrialized nations—is unheard of in remote and impoverished parts of the world. Even when such procedures could save a life, they're simply unavailable. Veljko Popov, a fifth-year M.D.-Ph.D. student at DMS, has been chipping away at this disparity for a few years now, with the assistance of Robert Harris, M.D., director of ultrasound at DHMC.

In 2002, Popov and Harris began investigating the feasibility of transmitting ultrasound images from Popov's hometown—Zrenjanin, Serbia—to DHMC for interpretation. With a grant from the Dartmouth International Health Group, the pair traveled to Zrenjanin to set up a basic computer infrastructure in a local hospital and to conduct preliminary tests.

The people of Zrenjanin are “a population to which I felt in debt, to whom I felt sorry for after all those years of suffering and political and social crises,” says Popov, who emigrated from Serbia in 1995, during its war with Bosnia. This project is a way to give back to the community he left behind.

Unit: In January 2004, Popov and Harris returned to Zrenjanin with a compact, portable sonography unit, donated by DHMC's Department of Radiology, and began collecting ultrasound images of patients. They used 50 of

HIGH-WIRE ACT: Dartmouth-Hitchcock was one of only 47 hospitals nationwide listed in both the *U.S. News & World Report* "Best Hospitals" ranking and in the "100 Most Wired" ranking by *Hospital and Health Networks* magazine.



the images in a study to compare the quality of transmitted scans—compressed so they could be e-mailed—with the original, uncompressed images. They found the quality to be comparable and the overall process feasible—not to mention inexpensive.

Ultrasound is an ideal form of imaging to use in remote and resource-poor countries, say Popov and Harris. After x-rays, ultrasound is the most widely used diagnostic tool worldwide. It does not use ionizing radiation, so safety concerns are minimal; it produces low-resolution images that are e-mailable; and the equipment is portable and relatively cheap—from \$5,000 to \$20,000 per unit. By comparison, a simple x-ray machine costs about \$75,000; a CT scanner, at least \$500,000; and an MRI machine, about \$1 million.

"It's hard to put an MRI machine in a little village in Africa," says Harris. But "it's easy to take a compact ultrasound

[unit], because you can move that around [from] village to village, house to house." Harris and Popov are now seeking discounted or gratis satellite transmission links because, as Popov explains, "there are only so many remote locations that have terrestrial internet links."

There is also a domestic aspect to Harris and Popov's international initiative. They look on the project as a pilot for figuring out how physicians can consult from afar during mass emergencies or natural disasters in the U.S.—"to examine large numbers of people in settings that are not necessarily hospital-based," says Popov. To develop this concept, the pair is collaborating with Dartmouth engineering professor Susan McGrath, Ph.D., who specializes in mobile computing systems.

Ultimately, Popov and Harris would like to export what they learn in Serbia to DMS initiatives in other parts of the world and to other medical schools.

Remote: Popov recently told the international news outlet Voice of America (VOA) that he believes many radiologists will donate their time to such efforts. "One goal of this project was to enable physicians who want to do humanitarian and philanthropic work but who cannot necessarily travel to remote areas and third world locations to still be able to do this work remotely," Popov told VOA. "This was started as a humanitarian project, and it depends on the good will of . . . the physicians of this country."

JENNIFER DURGIN

Pain researcher DeLeo is third incumbent of Given Professorship

Joyce DeLeo, Ph.D., a DMS researcher known for her strong mentorship of graduate students and for her studies of chronic pain, was recently named the Irene Heinz Given Professor of Pharmacology. DeLeo was "shocked" when she learned she had been appointed to the endowed chair. "It's a tremendous honor," she says.

DeLeo is only the third person to hold the Given Professorship; Robert Gosselin, M.D., Ph.D., was the first, in 1964, and Roger Smith, Ph.D., was the second in 1993. Both are now emeritus professors of pharmacology and toxicology. "It is certainly a choice that I applaud," Smith says of DeLeo's appointment.

DeLeo, a former Fulbright Scholar, came to DMS in 1988 as a postdoctoral fellow in the lab of anesthesiologist Dennis Coombs, M.D.—known for developing implantable pumps to deliver pain-management drugs. Previously, DeLeo had studied ischemia—decreases in blood supply due to obstruction or constriction of blood vessels—and its relationship to glial cells, which protect neurons in the central nervous system.

She was new to chronic pain research but welcomed the change. "I was always interested in pain," recalls DeLeo, who earned her Ph.D. in pharmacology at the University of Oklahoma in 1988. "There's a lot of duplicity in the mechanisms of



JON GILBERT FOX

Joyce DeLeo, right, poses with her two predecessors in the Given Chair—Bob Gosselin, left, and Roger Smith, center.

chronic pain and ischemia and neurodegenerative diseases. I thought, 'Wouldn't it be great to apply all of my knowledge of glial biology to nerve injury.'"

Investigator: DeLeo's research gained momentum through the 1990s as she studied low-back and chronic neuropathic pain—pain caused by diseases or abnormalities of the nervous system. In 2002, she became the first director of the Neuroscience Center at Dartmouth and vice chair of the Department of Pharmacology and Toxicology. Today, she is the principal investigator for two nine-year grants from the National Institutes of Health that total \$7 million.

DeLeo attributes much of her success to the graduate students and postdoctoral fellows who have worked in her lab over the years. "They bring such energy and such great ideas to the group," she says. In fact, she considers mentoring students and fellows "the highlight of my career" and "the best part . . . of being the director of a lab." Since she expects to be teaching and conducting research for many more years, "hopefully," she adds, "I'll have many more students."

JENNIFER DURGIN



ANDY NONRHOFF

Popov, left, and Harris, right, have been working on an international imaging project together since 2002.