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## **TRIPLL Supports Innovative Research on Pain In Later Life To Advance Clinical Care**

**R**esearchers at NewYork-Presbyterian Hospital are engaged in an innovative effort to improve the care of older adults with pain: the Translational Research Institute on Pain in Later Life (TRIPLL). Based at Weill Cornell Medical College and funded by the National Institute on Aging (NIA), TRIPLL is an Edward R. Roybal Center with a focus on chronic pain. The 13 NIA-funded Roybal Centers provide multidisciplinary research to improve the health and clinical care of older adults. TRIPLL is a collaboration of investigators from Weill Cornell Medical College, Cornell University-Ithaca, Mailman School of Public Health at Columbia University, the Hospital for Special Surgery, Memorial Sloan-Kettering Cancer Center, Visiting Nurse Service of New York, and the Council of Senior Centers and Services of New York City, Inc.

Research findings will influence geriatric patient care at both NewYork-Presbyterian/Weill Cornell Medical Center and NewYork-Presbyterian/Columbia University Medical Center.

"We are by nature an interdisciplinary Center," said Cary Reid, MD, PhD, Director of TRIPLL, who also is Associate Professor of Medicine and Director of the Office of Geriatric Research, Division of Geriatrics and Gerontology, Weill Cornell Medical College. "We have active input from sociologists, physicians, physical therapists, occupational therapists, epidemiologists, and psychologists, all of whom help us to answer basic questions about how to improve the management of pain in older adults."

TRIPLL awards pilot grants to support junior faculty and also performs mentoring and subjects ongoing work for reviewing. TRIPLL brings faculty across multiple institutions together by monthly work-in-progress sessions during which proposals and manuscripts are reviewed. These sessions use state-of-the-art Polycom videoconference equipment to enhance communication.

In addition to supporting research in the inpatient setting, TRIPLL works with community agencies to bring pain programs into the



community. In partnership with the Arthritis Foundation, programs are adapted for optimal use by older Hispanics in the Bronx and older blacks in Harlem. "That's exciting and innovative work," said Dr. Reid. Another novel project, he noted, involves training physical therapists to deliver cognitive-behavioral therapy to patients with pain.

### **Physical Activity as Self-Management**

Thelma J. Mielenz, PhD, Assistant Professor of Epidemiology, Mailman School of Public Health at Columbia University, and a TRIPLL investigator, is currently launching 2 community-based translational research projects of her own to decrease pain and disability and increase physical activity and self-management in older adults living in Upper Manhattan and the South Bronx, funded by the Patient-Centered Outcomes Research Institute and the Centers for Disease Control and Prevention. Dr. Mielenz has a forthcoming review chapter on the epidemiology of chronic pain and chronic pain-related conditions in *Epidemiology of Women's Health* (due for publication March 15, 2013) and presents on pain and physical activity (eg, "Do Pain Levels Have a Direct Causal Effect on Physical Inactivity Without Mediation by Function?," at

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## Robotic Applications and Operating Room Technology Are Transforming the Post-Op Surgical Experience

**B**uilding on the concept of minimally invasive procedures, robotic surgical approaches performed at NewYork-Presbyterian Hospital are vastly improving the patient experience. Real-time imaging in the operating suite combined with continually advancing robotic systems offer the potential for greater precision with less trauma, less scarring, less blood loss, and quicker healing. Surgeons are driving the advances, and there are programs at both NewYork-Presbyterian/Columbia University Medical Center and NewYork-Presbyterian/Weill Cornell Medical Center that create an environment that encourages their rapid implementation.

“Our surgeons are the ones driving robotic applications. My goal is simply to ensure we are setting up our operating rooms [ORs] to facilitate these innovations,” said John C. Evanko, MD, MBA, who is Medical Director of Perioperative Services at NewYork-Presbyterian/Columbia and a gynecologic surgeon. Dr. Evanko—whose expertise with the da Vinci Surgical System includes a minimally invasive approach to treat uterine fibroids, as well as other gynecologic surgeries—reported that real-time imaging has been fundamental to creating the

modern OR, which is capable of offering minimally invasive endovascular procedures, as well as radiologic-guided interventional, cardiothoracic hybrid, and robotic procedures.

“ORs for minimally invasive endovascular procedures provided a head start because they were set up for real-time imaging and had the structure and size to accommodate the equipment and connectivity that we need for robotic procedures,” explained Dr. Evanko, who works to assist OR innovation at NewYork-Presbyterian/Columbia. “Minimally invasive surgery overall and robotics in particular are now being used effectively across specialties, including gynecology, urology, otolaryngology, and thoracic and general surgery.”

### Gynecology

For most of the diseases and conditions in which robotic surgery is now an alternative to an open approach, it is not yet clear whether robotic-assisted surgery necessarily yields better outcomes. This is difficult to prove because of the challenges of performing randomized trials with appropriate controls, but Dr. Evanko said that there are clear advantages for the patient in regard to recovery when robotic-assisted surgery reduces

the size of incisions. In gynecology, the da Vinci Surgical System has been part of a movement to achieve minimal scarring and speedier return to normal activities after common procedures, such as hysterectomy and myomectomy.

“The published data that claim better outcomes with robot-assisted surgery are largely anecdotal and not any more compelling than the data which suggest that there are no outcome advantages,” Dr. Evanko said. “In my opinion, the jury is still out on whether these surgeries offer any significantly better clinical outcomes over conventional surgery, but the extent to which this approach advances a minimally invasive approach and allows patients to recover more quickly is perceived by patients as a very important advantage.”

Kevin Holcomb, MD, who is Director of Minimally Invasive Surgery of the Department of Obstetrics and Gynecology, NewYork-Presbyterian/Weill Cornell, noted that the benefit of offering advanced robotics technology is to improve patient quality of life while providing similar survival outcomes. Dr. Holcomb is also Associate Attending in Obstetrics and Gynecology at Weill Cornell Cancer Center, and Associate Professor of Clinical Obstetrics and Gynecology at Weill Cornell Medical College.

### Otolaryngology

It is this patient orientation that has driven the interest of surgeons at NewYork-Presbyterian Hospital since the early days of the movement toward minimally invasive resections. This has produced a proactive approach to developing ORs that can accommodate technological advances, such as real-time imaging and high-definition monitors that display laboratory results and other information relevant to the case. Some ORs incorporate teleconferencing that permits rapid communication with pathologists or other specialists who



NewYork-Presbyterian Hospital is improving their patient care by implementing new, advanced robotic systems that help to improve the patient experience.

might influence decision-making during the course of the surgery.

At both NewYork-Presbyterian/Columbia and NewYork-Presbyterian/Weill Cornell, this type of forward thinking has allowed surgeons across specialties to move quickly into robotic-assisted surgery where appropriate. One example is otolaryngology, where robotic-assisted excision of oral pharyngeal cancer has been in place for almost 4 years.

“Robotic procedures are replacing the major surgeries, which included mandibular resection in order to reach the back of the tonsil to remove these tumors,” said David I. Kutler, MD, Associate Professor of Otolaryngology at NewYork-Presbyterian/Weill Cornell. “With the robot, we can access these tumors through the mouth, without any incisions made to the face, and still do an oncologic procedure to remove these cancers. The time in surgery has been reduced from upwards of 10 hours to about 2 hours; hospitalization has been

reduced from 2 weeks to 4 days. Robotic surgery also circumvents the need for chemotherapy and high-dose radiation therapy.”

### Orthopedic, Gastrointestinal, Neurologic

At NewYork-Presbyterian/Columbia, robotic-assisted surgery is now being employed for some common orthopedic diseases, for resections of a vast array of malignancies, and for gastrointestinal diseases, including resections of the bowel. The precision of robotic-assisted surgery has long made it attractive for neurologic applications, but the expansion to such a broad array of organ systems is attributed primarily to its role in taking minimally invasive surgery to the next step. Although the laparoscope brought momentum to minimally invasive surgery, modern imaging systems allow visualization without a scope. It is a new approach that demands ORs with different capabilities.

“Imaging was once a preoperative device to plan surgery,” Dr. Evanko said. “Increasingly, imaging such as CT [computed tomography] scanning is an intraoperative tool to guide the procedure. The modern OR has to be large enough to accommodate the imaging systems, the displays, the robotic devices, as well as the monitoring equipment that would be found in a conventional OR. This requires planning and the infrastructure that allows the OR to function efficiently.” Simply running the wires to an increasingly complex and sophisticated array of devices limits the degree to which the OR can be retrofitted as needs evolve.

“We have been deeply involved in attempting to anticipate these changes and to approach the development of a modern OR with a prospective approach. This has allowed us to stay at the front of the curve in expanding robotic-assisted surgery where it has advantages for the patient,” Dr. Evanko said.

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The Gerontological Society of America, November 2011).

### Pain Disparities and Social Isolation

Racial and ethnic disparities in the treatment of chronic pain are an active area of research for TRIPLL, according to Elaine Wethington, PhD, Professor and Director of Graduate Studies, Department of Human Development, Associate Director, Bronfenbrenner Center for Translational Research, Cornell University, Ithaca, New York. “We did a researcher/community practitioner consensus conference to talk about this issue and to come up with a research and practice agenda for combating the disparities in pain treatment,” said Dr. Wethington, who also is Director of the Pilot Studies Program at TRIPLL.

The relationship between social isolation and loneliness and older people’s health also is under study. Dr. Wethington and Karl Pillemer, PhD (a Co-Director of TRIPLL), completed a review

chapter on social isolation and loneliness among older adults for *A Handbook of Solitude* (in press). “We found that there’s a growing literature that suggests not only that people’s poor physical health and pain increase their loneliness and their isolation from others, but also that loneliness and social isolation over time may be associated with worsening health problems through physiologic mechanisms that we’re only beginning to understand,” she said.

Dr. Wethington also is involved in a proposal to develop patient-centered comparative effectiveness research across multiple campuses. “Many older people have multiple chronic diseases where treatment is quite difficult and about management and pain control rather than curing the disease,” said Dr. Wethington. “The question of what patients want from the treatment is a very interesting one.”

### Mobile Health

Telehealth is a major focus for TRIPLL. As reported in a poster by Dr.

Reid and colleague Mimi Levine, MSII, primary care providers of geriatric medicine are interested in incorporating telemedicine into pain management.<sup>1</sup>

Joshua E. Richardson, PhD, MLIS, MS, Instructor, Center for Healthcare Informatics and Policy, Weill Cornell Medical College, is studying mobile health (mHealth), the use of mobile phones and mobile phone applications to improve the care of older patients with pain: “mHealth is information communication technologies that are used at the patient level to monitor and communicate patient-specific data,” said Dr. Richardson. He recently presented a needs assessment on the use of mobile devices to improve communication and care coordination for older patients with chronic pain.<sup>2</sup>

A potential application of mHealth is in the management of opioid medications, such as reporting side effects to physicians and titration instructions to patients. “Opioids have a significant risk

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# ADVANCES IN GERIATRICS

## Important news from NewYork-Presbyterian Geriatrics.

Current research projects, clinical trials, and advances in the diagnosis and treatment of geriatric patients

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profile that includes dizziness, constipation, and a number of factors that require geriatricians to routinely monitor older adults who are newly prescribed these drugs,” said Dr. Richardson. “It requires an effective, robust communication mechanism between patients and providers.”

Whether based on iPhone or Android technology, mHealth devices have the capability of active monitoring—such as when a patient logs side effects per hour—and passive monitoring, such as how many steps the patient walked that day. “If you can aggregate those data and display those data back to the physician, say, through an electronic health record, it will be a powerful way for a physician to monitor a patient’s progress or a patient’s status,” said Dr. Richardson.

mHealth is being studied in many areas, but TRIPLL is focusing on unique uses for this technology in pain and older adults and on evidence-based approaches, Dr. Richardson noted.

### Pain Registry

To advance research in such fields as mHealth and opioid treatment, TRIPLL

is partnered with the New York City Tri-Institutional Chronic Pain Registry.<sup>3</sup> Now in its fourth year, the pain registry enrolls patients from the pain clinics of NewYork-Presbyterian/Weill Cornell, Hospital for Special Surgery, and Memorial Sloan-Kettering Cancer Center. According to Charles E. Inturrisi, PhD, Professor of Pharmacology, Weill Cornell Medical College, the pain registry seeks to understand the effectiveness, as opposed to the efficacy, of treatments—in particular, how drugs work in patients whose comorbidities would have excluded them from randomized controlled trials. “What we’re interested in is what patient characteristics might be associated with better or worse outcomes from standard treatments that are used to manage pain, including both drug and nondrug treatments,” said Dr. Inturrisi.

Of the nearly 2,000 patients so far in the registry, more than one-third are aged 65 years or older, providing a large subpopulation of elderly patients for TRIPLL to study. Registry studies are intended to be long-term, prospective, repeat observational studies. If funding is procured, researchers plan to study both genetic factors and environmental factors.

“We have a fairly large number of patients so we can develop different cohorts,” Dr. Inturrisi commented. Cohorts might include patients getting opioids, not getting opioids, and getting combination therapy. “Probably what we’re going to find is that some combination of both drug and nondrug treatments will turn out to be the most effective treatment for certain patients.”

### References

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2. Richardson JE. Can Mobile Devices Improve Communication and Care Coordination for Older Patients with Chronic Pain? A Needs Assessment. Medicine 2.0 World Congress, Sept. 15-16, 2012; Boston, MA. <http://www.medicine20congress.com/ocs/index.php/med/med2012/paper/view/903>
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