Women experience more pain than men, study finds

Women report more intense pain than men in virtually every disease category, according to Stanford investigators who mined a huge collection of electronic medical records to establish the broad gender difference.

Their study suggests that stronger efforts should be made to recruit women in population and clinical studies to find out why this gender difference exists.

The Stanford scientists examined more than 160,000 pain scores reported for more than 72,000 adult patients. The study is believed to be the first to use electronic medical records to examine pain on this large a scale or range of diseases.

“We saw higher pain scores for female patients practically across the board,” said Atul Butte, MD, PhD, the study’s senior author. “In many cases, the reported difference approached a full point on a 1-to-10 scale. How big is that? A pain-score improvement of one point is what researchers view as indicating that a pain medication is working.”

While the overall results confirmed previous findings—for example, that female migraine patients report more pain than their male counterparts—the study also found gender differences in pain intensity for particular conditions, such as acute sinusitis and neck pain.

A delicate balance

New protocol eliminates kidney transplant drugs

Organ transplants can give patients a new lease on life. But to your immune system, the donated organ is a foreign invader. Carrying an organ that originated in someone else’s body means a lifetime regimen of drugs that work to keep your own immune system from attacking the new organ. These drugs are costly and can have serious, sometimes life-threatening side effects.

Stanford researchers are making steady progress in finding ways to give kidney-transplant patients a life without immune-suppressing drugs. A unique protocol, developed by investigators at the School of Medicine, aims to let kidney-transplant recipients jettison their indispensable medication. Its success also could spell substantial savings to the health-care system.

Free from medication

Eight of 12 patients in a clinical trial of the new approach have been off their immunosuppressant drugs for at least a year, without any apparent damage to their new kidneys. This is unheard of in patients undergoing standard transplantation procedures. Not one of the patients has experienced kidney transplant failure or serious side effects.

In all 12 cases, recipients received tissue-matched donor kidneys from close relatives.
When it comes to weight gain, what matters most is how many calories are ingested."
—John Morton, MD, associate professor of surgery and director of bariatric surgery at Stanford Hospital & Clinics, on a new study that found calories cause weight gain when people overeat, not the amount of protein in the diet. Jan. 3

When it comes to weight gain, we’re looking at causes no one would ever consider."
—Michael Link, MD, the Lydia J. Lee Professor in Pediatric Cancer and president of the American Society of Clinical Oncology, on the benefits of clinical trials for children with cancer. Jan. 12

Culture change
Programs build support system for teens

It was an ordinary afternoon at Palo Alto’s Gunn High School, when a cluster of freshmen gathered in the frosh quad for lunch. Then something remarkable happened.

A wave of upperclassmen suddenly descended on the ninth-graders and proceeded to, well, be nice. They introduced themselves, asked the younger students how they were doing and generally took a sledgehammer to the rigid social codes that govern high school.

Call it step one.

“What they’re trying to do is redirect the very culture of high school,” said Paul Dunlap, an English teacher at Gunn and a peer support group faculty advisor. “Instead of thinking, ‘I’m only friends with these people, these are the people I care about,’ they’re working to break down cliques and make sure everyone on campus knows each other.”

Positive messages

Meanwhile, Gunn has instituted a wellness program called Sources of Strength, built around a student-led peer support group called ROCK (Reach Out. Care. Know.). Its central effort is to have peer leaders from disparate social groups deliver positive messages while empowering students to help friends who appear to be in distress.

“It’s about creating a climate change on the campus, so that it’s not only OK to get help for a friend in distress, but it’s cool to do so,” Joshi said. “What’s more, it’s easy because you have a group of trusted adults you can go to.”

The program seems to be making a difference, he added, with more students taking advantage of available services. Students also appear to observe warning signs among their peers, such as a friend talking about the train schedule or no longer returning text messages.

Change of focus

For the 80 or so students involved this year, Dunlap said it’s given them a way to focus on their emotional needs and invest in the emotional health of the entire school.

“I don’t know that you can totally erase the existence of cliques, for example, but I hear anecdotes of people going up to strangers and saying, ‘How’s it going? You look sad.’ Enough of those little things happen, and maybe that’s how a culture shifts,” Dunlap said.

Joshi said he believes the efforts under way represent an even broader shift across Palo Alto.

“The city, the schools, the organizations—everyone’s doing an excellent job of coming together,” he said. “They’re asking, ‘How do we get better at reaching the greatest number of kids?’ We believe we’re creating a model of how a community can collaborate on school mental health and truly have an impact on such an important issue.”
They’re the crash-test dummies of modern medicine: two sets of full-scale hospital rooms, including operating rooms, recovery rooms and patient rooms, built to the architectural specifications of the new Stanford Hospital and expansion of Lucile Packard Children’s Hospital. They include every fixture—from sinks, overhead booms, and monitors to electrical outlets, oxygen and gas hookups, light switches, and hand sanitizer dispensers.

The rooms are facility mock-ups, built to test the new designs and workflow well before construction begins. Though much of the equipment is real, there is also a lot of “mock” equipment: booms made from PVC pipe, a surgical biplane crafted from foam board and duct tape, and string standing in for electrical wires.

“They didn’t send the space shuttle off without building models, testing and modifying,” said Michael Edwards, MD, chief of pediatric neurosurgery at Packard Children’s. “We may not be as complex as the space shuttle, but the process is still important to ensuring safety and effectiveness.”

Integrating feedback
Physicians, nurses and other health care personnel have toured the rooms to experience the layouts and provide feedback. “You can look at pictures, but it’s not until you see something modeled that you understand the space,” said Grace Hsu, senior project manager for design and construction at Stanford Hospital.

At Packard Children’s, multidisciplinary teams, including parents, visited the mock-ups together to run realistic, scripted scenarios. “There was not one room in which we didn’t make significant changes,” said Jennifer Romer, RN, lead senior project manager for Packard Children’s. “By modifying the design now, before building, we saved millions of dollars.”

Collaboration and innovation
The patients’ input was also critical. “From the patient focus groups that I helped facilitate, more than 100 of their suggestions were included,” said Nancy Lee, RN, vice president of patient care services and chief nursing officer at Stanford Hospital.

Building mock-ups also helps the construction teams, who analyze how the headwalls come together and how to position pipes, electrical wiring and data infrastructure. “The contractors can actually test how they’re going to build the rooms when the time comes,” said Hsu.

“One of the most advanced aspects of the new design reflects the increasing use of imaging guidance and diagnostics during surgery. The new “hybrid” set-ups will include MRI scanner rooms directly connected to the surgical rooms to contain patients in a sterile zone, reduce risk and infection, and improve outcomes and efficiency.

Breakthrough thinking
But during testing, the hybrid mock-ups not only allowed refinements to the existing design but also opened collaborations with vendors to pioneer innovative medical equipment. For instance, the teams needed a bed that would fit both the angiogram and MRI scanner so that patients would not have to be moved from table to table. But between the two scanners—made by two different manufacturers—no such table existed.

“The breakthrough comes when you’re thinking of something that hasn’t been done yet,” said Edwards. “You tell the vendor what you want to do, and they say, ‘We don’t do that yet.’ But then they realize that the trend is starting here, and that other companies will need the same thing in the future. So they build it.”

In other words, the mock-ups had a positive effect not only on the design of Stanford Medical Center but also on the future design of hospitals everywhere.

“The process of involving everyone throughout this whole experience has been very valuable,” said Ann Weinacker, MD, Stanford Hospital’s chief of staff. “The staff has appreciated being asked for suggestions. We know that the rooms planned are really going to be conducive to delivering the best care.”

For more information and updates on the Medical Center Renewal Project, visit the project’s website, www.SLUMCRenewal.org.
Imagine that Homeland Security officials issue a warning about possible attempts to sabotage water supplies across California.

That scenario was the focus of an emergency exercise in November by hundreds of employees at Stanford Hospital & Clinics and Lucile Packard Children’s Hospital, led by the hospitals’ Office of Emergency Management.

Just three weeks later, Packard Children’s faced an actual crisis when the ground floor flooded after a water line failed. But largely as a result of preparation and training, the emergency was quickly contained and never affected patient care or safety.

Preparing for the worst is what occupies practically every hour of the day for the four full-time staff members in emergency management, according to Bernadette Burnes-Line, the group’s administrative director. The team develops plans for every imaginable hospital emergency, including earthquakes, fire, explosions, floods, acts of violence, viral pandemics, radioactive fallout and bioterrorism.

**Training session**

Team members train hospital employees in emergency response and preparedness; forge emergency-response partnerships with local cities, counties, institutions and businesses; and work closely with staff from the School of Medicine and university on campus-wide crisis-response strategies. The office also stocks emergency supplies and equipment, including decontamination tents, burn-trauma caches and portable generators. “We live our motto of ‘together prepared, together ready’ in all our planning,” Burnes-Line said.

By 9 am the day of the Nov. 17 exercise, the emergency team had convened top-level administrators, clinicians and other staff in the Hospital Command Center on the third floor of Stanford Hospital. The group faced two key challenges: Keep the hospitals functioning without tap water, which is used for everything from hand washing and cleaning rooms to heating and cooling the buildings, and accommodate the inevitable surge of new patients sickened by the tainted water.

More than 50 volunteers acted as patients, inundating the emergency department (which that day was already full). Almost all hospital staff had a part to play, from the CEOs in the Command Center to the housekeeping staff who practiced cleaning patient rooms without water, said Emergency Management Director Brandon Bond.

“Everyone rose to the occasion and came together as a cohesive team,” Bond said. “Of course, there was some learning that took place and opportunities for improvement that we identified, but that’s why we drill: to see what works and what doesn’t—so we can be prepared when it really happens.”

**Real-life situation**

And then something really happened: On Dec. 10, a chilled-water line serving both hospitals failed, flooding the ground floor of Packard Children’s with 2 feet of water and temporarily forcing the relocation of nine Stanford Hospital patients. In this real-life emergency, the payoff of the November exercise became apparent, Bond said. The Hospital Command Center was activated and the emergency response was rapid, turning off tap water for about four hours to determine whether it had been contaminated. (It hadn’t.) Bottled water was distributed to all inpatient units, as had been practiced during the exercise.

In 2010, the Joint Commission, the major accrediting body of U.S. health care organizations, recognized the emergency management team for best practices and quality of care in two separate surveys. “The hospitals are a recognized leader in emergency...
preparedness, and our goal is to continue advancing the field,” Burnes-Line said.

Creative solutions

The emergency team also develops new tactics to prepare for, minimize and recover from disasters. In 2009, they tested the idea of using a drive-through emergency clinic. Mock patients were examined and treated in their vehicles, a model that could be especially useful after a bioterrorism event or during a viral pandemic, said Eric Weiss, MD, an associate professor of emergency medicine at Stanford.

“We can use the patient’s vehicle as a self-contained isolation compartment to limit the person-to-person spread of germs,” he said. “Not only is it an effective social distancing mechanism, it also allows us to see patients faster than we are able to in a regular examination-room setting.”

The results of the study were so successful that the Santa Clara County Department of Public Health gave the group a grant to develop a plan for operating drive-through clinics that can be distributed to hospitals and shared around the nation.

Burnes-Line and Weiss said the emergency group also plays an important role in developing and strengthening emergency-response partnerships with local agencies, organizations and businesses as diverse as the SLAC National Accelerator Laboratory, Palo Alto Medical Foundation, Stanford Shopping Center, and Palo Alto fire and police departments. “You don’t want to be getting to know your partners in the middle of an emergency,” Burnes-Line said. “We want these relationships well established.”

Always prepared

In the event of a surge of patients from local communities, the emergency management group has established plans for doubling up patients in rooms, converting the cafeteria and other non-clinical areas into space for patient care and ensuring quick access to emergency supplies. And while three emergency generators would be used to supply power to vital patient-care functions during a blackout, the group keeps flashlights and headlamps on hand to ensure that staff can continue to work effectively. It even has a plan for sheltering animals and pets in a catastrophe.

If it can happen, the emergency management team is planning to deal with it. But Bond emphasized that the most important factor in disaster preparedness is overall community readiness. “I cannot stress enough how vital it is for community members to be prepared themselves, to get involved with their community emergency response teams and to be sure they have basic first aid training and supplies, CPR training and emergency food and clothing,” he said. Being prepared will help relieve stress on emergency responders and the hospital in a disaster situation.

A 54-page emergency preparedness guide, “Ready!” is available at stanfordhospital.org/oem.

Prepared for the worst

Brandon Bond keeps emergency supplies on hand for his entire family, including special provisions for his twins and the family dog.

As a general rule, Bond said, you should stock enough emergency supplies to last a week. For instant food, he recommends non-military-style meal kits, which are generally easier to use. He also advised using canned food with a pop top, rather than the kind requiring an opener. He has 23 gallons of water stored in his garage (the rule of thumb is one gallon of water per person per day, he said).

Also stored in the garage are sleeping bags, a portable shower and cat litter. Bond doesn’t have a cat, but the litter is good for an emergency when no restrooms are available. “It’s really absorbent,” he said.

Alongside his house, Bond has a wrench for shutting off the main gas valve. You can buy one for $5 to $8 at just about any hardware store. But he cautioned that you should shut off the gas only if you smell it because it can take a while for the gas company to activate it again.

Bond also keeps a flashlight on his nightstand and a pair of shoes under his bed in case he needs to get through a house covered with shattered glass and debris after an earthquake.

“The message really is about becoming a resilient member of your community because that takes stress off the system during a disaster,” he said.
Eating Disorders and Their Impact on the Brain
Presented by Packard Children’s Hospital
A panel discussion and ask-the-experts session on what can be done to help people with eating disorders adopt a healthier thinking style
**Date:** Tuesday, Feb. 28, 7 pm
**Location:** Packard Children’s Auditorium, 725 Welch Road
Register online at calendar.lpch.org or call 650-724-4601.

Researching Chronic Diseases
Presented by Stanford Hospital Health Library
**Speaker:** Jean Johnson, MLIS
**Date:** Thursday, March 1, 3:30–5 pm
**Location:** Stanford Hospital Health Library, Oshman Family Jewish Community Center, Room G106, 3921 Fabian Way, Palo Alto
To register, call 650-498-7826.

Integrative Medicine: What Parents Want to Know About Dietary Supplements and Mind-Body Therapies
Presented by Packard Children’s Hospital
**Speaker:** John Mark, MD
Clinical Professor of Pediatrics
**Date:** Tuesday, March 13, 7 pm
**Location:** Packard Children’s Auditorium, 725 Welch Road
Reservations required. Reserve a space at calendar.lpch.org.

Preparing for Surgery
Presented by Stanford Hospital Health Library
**Speaker:** Nancy Dickenson, MLIS
**Date:** Thursday, March 15, 3:30–5 pm
**Location:** Stanford Hospital Health Library, Oshman Family Jewish Community Center, Room G106, 3921 Fabian Way, Palo Alto
To register, call 650-498-7826.

Dads of Daughters: The Joys and Challenges of Raising Teen Girls
Presented by Packard Children’s Hospital
**Speaker:** Julie Metzger, RN
**Date:** Tuesday, March 27, 7 pm
**Location:** Packard Children’s Auditorium, 725 Welch Road
Registration fee. To register, go to calendar.lpch.org.

Researching Drug Information
Presented by Stanford Hospital Health Library
**Speaker:** Carmen Huddleston, MLIS
**Date:** Thursday, March 29, 3:30–5 pm
**Location:** Stanford Hospital Health Library, Oshman Family Jewish Community Center, Room G106, 3921 Fabian Way, Palo Alto
To register, call 650-498-7826.

The Impact of Cancer Treatments on Memory, Thinking and Attention
Ernest Rosenbaum Cancer Survivorship Lecture
**Speaker:** Shelli Kesler, PhD
Assistant Professor, Psychiatry and Behavioral Sciences
**Date:** Wednesday, April 18, 6 pm
**Location:** Francis C. Arrillaga Alumni Center, 326 Galvez St., Stanford University
Space is limited. To register, please call 650-725-9456.

Fear of Recurrence and Late Effects: Living with Uncertainty
Ernest Rosenbaum Cancer Survivorship Lecture
**Speaker:** Manuela Kogon, MD, PhD
Clinical Associate Professor, Psychiatry and Behavioral Sciences
**Date:** Wednesday, May 9, 6 pm
**Location:** Francis C. Arrillaga Alumni Center, 326 Galvez St., Stanford University
Space is limited. To register, please call 650-725-9456.

Autism Spectrum Disorders Update
Presented by Packard Children’s Hospital
A one-day conference for parents, educators and care providers of children with an autism spectrum disorder
**Date:** Saturday, May 12
**Location:** Frances C. Arrillaga Alumni Center, 326 Galvez St., Stanford University
Registration fee. Register at childpsychiatry.stanford.edu. For more information, call 650-721-6327 or email autism@lpch.org.

**Did you know?**

The strongest muscle in the body is the masseter muscle, which is located in the jaw.
The heart of the matter
Innovations ahead for cardiovascular care

To mark American Heart Month, Stanford Medicine News sat down with Robert Robbins, MD, chair of the Department of Cardiothoracic Surgery at Stanford, to discuss innovations in cardiac care and what the future holds.

What are some new minimally invasive procedures you’re excited about?
I think what we’re doing here with aortic valve replacement is a big advance. For people who have aortic valve stenosis—a narrowing of the valve through which blood passes from the left ventricle to the aorta—replacing that valve has traditionally been done through open surgery. This involves cutting through the sternum, putting the patient on a cardiopulmonary bypass machine, stopping the heart, and then removing and replacing the valve. It’s a procedure that can take as long as four hours and require two to three months for the patient to recover.

As part of a clinical trial, we’re doing some valve replacement transfemorally—using a catheter to maneuver the new valve through blood vessels to the heart. Only one small incision to the femoral artery is needed, and the procedure generally takes little more than an hour. Recovery time is a few days. We have now done more than a hundred cases, so when the procedure gets FDA approval, which hopefully will happen this year, we’ll be able to hit the ground running. It would be especially useful for patients who are high-risk for open surgery, such as older patients and patients with multiple medical problems.

You’re director of the Stanford Cardiovascular Institute, one of the nation’s top heart-research centers. What are some areas of research you find compelling?
The ability to map the human genome has opened up a whole new realm of possibilities. Much work in this area is being done at Stanford, where we have a lot of strength not only in mapping DNA but in interpreting the massive amount of data it produces. Our researchers will be able to create algorithms and ways to manage and interpret this data. You may one day be able to walk into your doctor’s office and say, “Here’s my genetic code. What does it mean?”

Another great hope is to be able to look at a genetic profile and try to customize drug therapy to specific cardiovascular diseases, such as hypertension. If your genes make certain proteins or enzymes that metabolize a certain class of drugs better than another class, then doctors could use a so-called pharmacogenomic approach to customize treatments.

The Cardiovascular Institute is also focusing on long-term health. In the future, physicians are going to be paid for delivering the highest quality care at the lowest cost, so there’s a transition under way from diagnosing and treating conditions to predicting and preventing. One of the really important areas is going to be how we can get people to change their behavior, so the focus becomes promoting health rather than treating disease.

Does Stanford Hospital have any such prevention programs in the works?
We’re developing a program called the Cardinal Commitment, which we will likely roll out in phases. The basic principle is that we would work with patients and apply wireless technology to help us manage their heart health. This might include biometrics, such as checking blood pressure and pulse, which could be transmitted to a central processing center for monitoring. If you can imagine having a muse or a life coach tethered at the other end of the electronic data fields, helping you to manage your cardiovascular health—that’s the idea.

Learn more about the Stanford Cardiovascular Institute at cvi.stanford.edu.

It took more than 30 years of mouse research, Strober said, before he finally came up with just the right mix of agents for “avoiding a civil war” among dueling immune systems. But the combination of targeted radiation and the organ donor’s blood-forming stem cells—along with antibodies that selectively deplete some of the recipient’s immune cells—suppresses immune activity that would otherwise destroy the donated kidney.

Eventually the recipient’s immune system returns to its pre-transplant state of readiness, “but it casts a blind eye on the foreign tissue of the graft,” Strober said.

Numbers in need
More than 400,000 people in the United States with kidney failure are on dialysis, which mechanically filters the blood. While life-extending, dialysis is far from a perfect solution. Patients must spend several hours immobilized in special centers three times a week for the rest of their lives or receive more frequent dialysis at home. Moreover, life expectancy for patients on dialysis is significantly lower than for those who successfully receive new kidneys. Dialysis is also expensive, costing close to $70,000 per patient per year.

In the United States, about 17,000 kidney transplants are performed each year, with tens of thousands on the waiting list.

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In the United States, about 17,000 kidney transplants are performed each year, with tens of thousands on the waiting list.
Sherifa Ibrahim has a gentleness about her that is instantly apparent. Her voice is soft, warm in tone and soothing, exactly the balm that might be wanted by someone ill in the hospital. Yet talking is not Ibrahim’s first priority. In her work as a volunteer with Stanford Hospital’s Spiritual Care Service, her primary mission is to be an understanding listener.

Nearly 200 volunteers from several countries and different religious faiths bring more than 11,000 hours of their time each year to patients at Stanford Hospital and Lucile Packard Children’s Hospital. Sometimes volunteers assist with familiar rituals, like communion. Or they may become a regular part of the treatment team for patients whose stays extend for many days.

They might be present toward the end of a patient’s life or at a moment when the news is disheartening. Many are retirees, while others find time beyond their regular jobs. Some have been patients at Stanford or are related to former patients. Without exception, they share one thing in common—a generosity of heart, motivated by a desire to help.

Ibrahim comes with a special layer of knowledge. In her native Egypt, she studied to be a pediatrician and graduated from medical school. Her course changed: She married, became the mother of three and moved to the United States. A friend studying at Stanford connected her to the Spiritual Care Service, initially through its associate director, the Rev. John Hester.

“Father Hester has been like a big brother,” she said. “The whole group is wonderful, and the hospital is a friendly and warm environment.”

Ibrahim came to the Spiritual Care Service five years ago, as the group was developing its first training program for Muslim volunteers. Because visiting the sick is one of that faith’s important activities, Ibrahim was especially happy to be of service. And, she said, “I have been a patient, so I know how having someone of the same background, of the same tradition, can make it easier.”

That means she knows about dietary restrictions and the times during the day when the faithful are called to prayer. She helps Muslims who might not know that when someone is restricted from prayer by illness, “Allah makes it easy. There are some permissions—if you are not able to stand up or sit up or put water on your hands.”

Her knowledge of Arabic has been another blessing. She remembers one Arabic-speaking patient “who had no one else.” She and other volunteers made a point to visit him every day.

She considers her visits to patients as an honor. “You enter the room with a sincere feeling that you are really caring for that patient and can pray with them. You have never seen them before, and you might never see them again, but we are all human.”

On occasion, a patient’s condition might be so critical that “I can’t do anything except to be supportive, to alleviate pain if I can. I try to give hope and strength and positive feelings. I don’t do this for my sake, but for Allah’s sake. I hope that I’m doing something that is pleasing to him.”

“I have been a patient, so I know how having someone of the same background can make it easier.”

—Sherifa Ibrahim

Learn more about the Spiritual Care Service at stanfordhospital.org/forPatients/patientServices.