SWIMMING UPSTREAM
A respite from ulcerative colitis
five years in the making

ALSO:
Congenital heart defects
Histotripsy for BPH
Colonoscopy guidelines
Skin aging
Thoracic aortic aneurysms
Breast reconstruction
EDUCATION

Professional development

U-M offers a variety of self-study and in-person education opportunities for community providers. Visit ocpd.med.umich.edu/cme/course-calendar to see what’s coming up, such as:

- 32nd Annual Internal Medicine Update, July 25-27
- 27th Annual Pediatric Board Review, Aug. 24-29
- Treatment of Aortic Stenosis in the 21st Century: TAVR and Surgical Technique, Sept. 6
- Cutting Edge Community Care of Older Adults, Sept. 18
- Practical Solutions to Common GI Problems, Oct. 4
- Familial Colorectal Cancer: Diagnosis, Genetics and Management, Oct. 11
- Contemporary Issues in Multidisciplinary Breast Cancer Management, Oct. 18
- 27th Annual Update in Pulmonary and Critical Care Medicine, Nov. 14-15

On the cover: Amy Akers has returned to the pool after ulcerative colitis cut her swimming career short.

TAVR ticker

The U-M Frankel Cardiovascular Center is the highest-volume center in the state and among the top in the country for transcatheter aortic valve replacement (TAVR).

TAVR procedures performed as of May 1, 2014.

INFORMATION Learn more about TAVR at U-M at umcvc.org/tavr.

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NEUROSCIENCE

The spoon stabilizer was tested at U-M.

MEALTIME MADE EASIER

Microelectronics in spoon handle cancel movement from essential tremor

Patients with essential tremor and other conditions that cause involuntary hand motions often find eating to be a frustrating ordeal — enough to keep them from sharing meals with others.

Now, a new U-M clinical study of a device designed by a UM engineering graduate gives such patients a new option. The battery-powered base of the device contains microelectronics that sense and move in the opposite direction of hand tremors in real time, keeping a detachable spoon relatively still.

In a clinical trial involving 15 adults with moderate essential tremor, the device improved their ability to hold a spoon still enough to eat, and to scoop up mock food and bring it to their mouths.

The researchers measured the effect via a standard tremor rating, subjective patient ratings and digital readings, and published results in Movement Disorders. U-M neurologist and essential tremor specialist Kelvin Chou, M.D., led the study, which tested the Liftware product made by a startup company called Lift Labs.

UMHS offers comprehensive care for essential tremor as part of its Movement Disorders Center, including a range of medications to calm tremors, and deep brain stimulation. But, says Chou, “Only about 70 percent of patients respond to medication, and only about 10 percent qualify for surgery, which has a high and lasting success rate.” The new device may help many patients with residual tremor.

INFORMATION For more information on essential tremor care at UMHS, visit umhealth.me/esstrem.

ORDER The Liftware spoon stabilizer is now available for patients to order directly through the manufacturer. Learn more at liflabsdesign.com.

INFORMATION For more information on essential tremor care at UMHS, visit umhealth.me/esstrem.
NEUROSCIENCE

Use your head

$1 billion a year spent on headache-related brain scans, despite guidelines to the contrary

A patient with severe headache or migraine arrives in your office, worried her symptoms might stem from a tumor or aneurysm and asking for an MRI. What do you do?

In one in eight visits for headache or migraine, patients end up being sent for brain imaging despite multiple guidelines that discourage it for most patients, a new U-M study finds. The authors, all U-M neurologists, conservatively estimate that these scans cost the U.S. about $1 billion a year.

The study, published in *JAMA Internal Medicine*, shows the rate of neuroimaging for headache has risen, not fallen, since guidelines were published. The authors speculate that patient demand for the scans drives this overuse. They suggest that better public education, plus insurance plans with cost sharing based on the likely value of the scan for each patient, may be needed.

The research uses national data on headache-related physician visits and neuroimaging scans by people over age 18, and calculates estimated total costs across multiple years. In all, 51.1 million headache-related patient visits occurred between 2007 and 2010 — nearly half of them related to migraine. The vast majority were by people under the age of 65, and more than three-quarters of the patients were women. In all, 12.4 percent of these visits resulted in a brain MRI or CT.

“Several guidelines — including ones from neurology and radiology groups — say we shouldn’t do this, but yet we still do it a lot. This is a source of tremendous cost in health care without a lot of evidence to justify the cost,” says Brian Callaghan, M.D., M.S., the U-M neurologist who led the research team.

RESEARCH

MAKING THE GRADE

Large Type 2 diabetes study now enrolling

GRADE (Glycemia Reduction Approaches in Diabetes: A Comparative Effectiveness Study) is an unmasked clinical trial comparing common diabetes medications in combination with metformin. The clinical study, which is now enrolling patients, seeks to ascertain long-term glycemia-lowering effectiveness and patient-centered outcomes. Patients diagnosed with Type 2 diabetes within the last 10 years, who are taking metformin alone, may be eligible.

“What differentiates GRADE from previous studies is that it will provide a head-to-head comprehensive comparison of the most commonly used drugs over a long period of time,” says William Herman, M.D., M.P.H., U-M professor of Diabetes in the Division of Metabolism, Endocrinology & Diabetes (MEND). Herman is principal investigator for GRADE.

“In addition to determining which medications control blood glucose levels most effectively over time, we will examine individual factors that are associated with better or worse responses to the different medications,” Herman says. “This should help us to personalize the treatment of Type 2 diabetes.”

All participants will take metformin and be randomized to one of four medications approved for use with metformin: GLP-1 agonist (liraglutide); sulfonylurea (glimepiride); DPP-4 Inhibitor (sitagliptin); or long acting insulin (glargine).

Participants will have diabetes medications managed at no cost throughout the study, including four medical visits per year, but will receive other health care through their own providers. The GRADE study team will communicate regularly with the PCP while the patient is involved, providing lab and clinical results.
AFFORDABLE CARE ACT

GROWTH MODE

Medicare Accountable Care Organization grows to 5,700 providers

More than 5,700 Michigan doctors and other top-level providers have joined a growing organization that seeks to improve the health and health care of Michiganders covered by Medicare while also saving taxpayer dollars.

The initiative, called POM ACO, now includes all 1,700 physicians of the U-M Medical School’s Faculty Group Practice, nearly 900 other U-M Health System providers and more than 3,000 other physicians from 12 groups and 22 counties around the state. Together, they will be responsible for improving the care and health of more than 120,000 Michigan residents — and may share in any savings that result.

POM ACO, also known as Physician Organization of Michigan ACO, LLC, is an Accountable Care Organization formed under the Medicare Shared Savings Program and authorized by the Affordable Care Act. It grew out of U-M’s eight years of experience in the movement to make Medicare better and more efficient.

The new members include physicians from groups that had not previously taken part in an ACO, including MidMichigan Health, which is affiliated with UMHS.

“Our commitment to improving the health of individuals and populations — and containing the growth of health care costs — grows even stronger with this transition, and we’re glad to be joined by so many like-minded physicians and providers across the state,” says David Spahlinger, M.D., executive director of the U-M Faculty Group Practice and chair of the POM ACO board.

JOIN For more information on POM ACO, visit pom-aco.com. If you or your organization would like more information on joining POM ACO, email POMACO-AnnArbor@med.umich.edu.

RESEARCH

PERL OF WISDOM

Seeking patients with Type 1 diabetes for study on renal disease

The Preventing Early Renal Function Loss in Diabetes (PERL) Consortium was recently awarded $24.3 million by the National Institutes of Health for a novel clinical trial to study a potential kidney disease treatment for people with Type 1 diabetes. U-M is one of eight institutions in the consortium.

This five-year randomized clinical trial will evaluate whether allopurinol, an inexpensive and safe FDA-approved drug for treating elevated uric acid (gout), is effective in reducing or slowing down kidney function loss among people with Type 1 diabetes. Candidates for the study are currently being sought.

If the study shows that allopurinol can halt or slow down loss of kidney function by lowering levels of serum uric acid, it would be a major breakthrough. This relatively inexpensive drug could become a standard diabetes treatment and an important tool for preventing end-stage renal disease.

STUDY For more information on the study, including eligibility guidelines, visit umclinicalstudies.org or contact Cynthia Plunkett at cplunket@umich.edu or 734-936-8065.
Free the data
Making BRCA results available for the common good

The Supreme Court of the United States ruled in June 2013 that naturally occurring human DNA cannot be patented, after hearing a case centering on patents on the BRCA1 and BRCA2 genes held by Myriad Genetic Laboratories. The decision led to several new laboratories beginning to offer testing of the BRCA genes, but also highlighted a related problem with interpreting results from the testing.

“Interpretation of genetic test results is a complicated process that depends on available data and some amount of comparison with results from other patients and families,” says Jessica N. Everett, M.S., CGC, a U-M genetics counselor. “Many scientists have advocated for use of open databases where research and commercial laboratories could come together to share results.”

Combining data from many sources increases the ability to understand results for individual patients. Researchers and health care providers have been contributing information about BRCA1 and BRCA2 mutations to the National Center for Biotechnology Information’s Breast Cancer Information Core, an international open access database, since shortly after the BRCA1 gene was identified in 1993. However, commercial laboratories are not required to share their results in the database. Freeing genetic data can help.

On the heels of the Supreme Court decision, the Free the Data initiative was launched to help increase data sharing. The goal of the project is to encourage patients and health care providers to share their BRCA genetic test results from commercial laboratories.

Free the Data is the work of a consortium of patient advocacy groups, academic institutions and health professional organizations, and is managed by the Genetic Alliance, a nonprofit health advocacy organization committed to transforming health through genetics and promoting an environment of openness centered on the health of individuals, families and communities.

Participants can register at the site, and then set specific privacy permissions to designate how and with whom they would like to share their test result information. They can also view reports of all accesses to their data. In addition to test results, the site also allows patients to share health information relevant to their genetic testing. Combining results with relevant health histories provides additional information to help researchers better understand and interpret test results. Health care providers who order testing can also share results through the site.

PARTICIPATE Encourage your patients who undergo BRCA testing at commercial labs to share their results. You and your patients can learn more about the Free the Data movement at free-the-data.org.

REFER Learn more about the U-M Cancer Genetics Program at mcancer.org/cancer-genetics. Refer patients to the program by calling M-LINE at 800-962-3555.
Amy Akers, a star athlete on the Grand Valley State University varsity swim team, faced a five-year battle against a disease that no one could see and many didn’t believe she had.

After working hard to make a name for herself in collegiate sports, she virtually stopped living. Diarrhea, fevers and headaches plagued her. She says everything she worked so hard for fell apart as she managed the symptoms of ulcerative colitis, an immune-mediated disease that causes the colon to become inflamed with ulcers.

“With ulcerative colitis, there’s a spectrum of severity,” says University of Michigan Health System gastroenterologist Ryan Sticham, M.D. “This is a condition that requires specialized medical attention, starting with diagnosis. Careful formulation of a treatment plan needs to be
and ulcerative colitis have similar symptoms and treatments, but also distinct differences in course and treatment. With a series of tests, doctors can usually tell ulcerative colitis from Crohn’s disease; however, occasionally they are indistinguishable.

While the diseases can occur at any age, they often start between the ages of 15 and 25 and affect men and women about equally. Ulcerative colitis affects about 600,000 people in the U.S., while Crohn’s disease affects about 700,000.

The type of treatment, including immunomodulating therapies, varies from patient to patient based on symptoms, severity and the individual’s disease biology. Treatment includes several medical therapies and, in some cases, surgery. Treatment options continue to change rapidly, with new medications, more effective use of traditional treatments, and improved decision-making on when to pursue surgery.

**CHANCE TO LIVE AGAIN**

Two and a half years after her symptoms began, Akers met with Stidham, who diagnosed her with ulcerative pancolitis. By this time her disease had become severe, and while aggressive medical therapy significantly improved control, over time it proved to be insufficient. Akers’ symptoms became severe enough that she needed to cancel a training trip to Florida and retire from competitive swimming.

She was hospitalized three times with symptoms of UC, and each time, her mother explains, “She was a little worse than the time before.” She reached a point when conventional therapies, as well as novel therapies available through clinical trials, were not helping and she made a tough decision to have her colon removed.

“I felt like the condition was controlling my every move,” says Akers. “I tried countless medications and tests before I realized I was fighting a losing battle inside of myself.”

Stidham explains that, understandably, most patients are willing to go to great lengths to avoid surgery. “We are charged with helping to predict if a change in medication will be personalized to the patient’s individual type of UC — no two patients are exactly alike. In addition, taking the time to explain to patients what is happening to them and how to partner in improving the condition is essential for the best outcome."

Stidham is one of nine gastroenterologists specializing in inflammatory bowel disease (IBD) at U-M. In addition to patient care, Stidham performs research focusing on improving the ways to monitor disease activity and predict the clinical course of Crohn’s disease and ulcerative colitis. More than 25 IBD clinical studies are underway at U-M, offering cutting-edge treatment to patients who have failed standard therapies.

“There’s been an explosion of knowledge over the past decade, and with that has come new ways to diagnose and treat this frequently very young population,” Stidham says. “People who are functioning in work and school can become completely debilitated by these conditions.”

Over the course of her illness, Akers, now 23, would see four different doctors, including one who told her she had an eating disorder. Frequent bathroom trips and stomach pains continued. “Colonoscopy after colonoscopy, multiple blood tests, X-rays, MRIs, barium swallows — and none of them gave the answer I needed,” she says. “I shut out the world and denied what was happening.”

**EARLY DIAGNOSIS, LIFETIME MANAGEMENT**

Both Crohn’s disease and ulcerative colitis are conditions that fall under the umbrella term of inflammatory bowel disease and both often require lifelong management. Crohn’s disease and ulcerative colitis have similar symptoms and treatments, but also distinct differences in course and treatment. With a series of tests, doctors can usually tell ulcerative colitis from Crohn’s disease; however, occasionally they are indistinguishable.

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“We’ve learned through the work of hundreds of researchers and scientists across the world that this is a very complex condition. It involves the genes that you were born with, the immune system you develop, and also where you live,” Stidham says. “And it is such a complex disease that we are finding new ways to treat it, new ways to understand it and new ways to predict what is going to happen.”

“Because the symptoms of IBD involve the intestines and bowel, people often aren’t ready to discuss it,” he continues. “If you can break through that, and let them know that there are people who can help, it is a really satisfying job to have.”
sufficient or if surgery is the best option,” he says. “In severe cases of ulcerative colitis, we begin discussing surgery as soon as it becomes evident that intensive therapy is needed. Having surgical discussions early provides an opportunity for patients to consider the benefits of medical versus surgical treatments before the situation becomes emergent, ending the cycle of pain, repeated hospitalizations and disability.”

After several discussions with her medical team, Akers did her own research and found a blog by a young woman who also had a surgical removal of the colon and rectum and restorative proctocolectomy using a J-pouch. Akers realized the surgery would be a chance to live again. It would provide control over her symptoms, including pain, diarrhea and fatigue, and once the pouch was connected to the remaining muscles, elimination would remain relatively normal.

“I went in to surgery and my colon, with all its inflamed glory, came out,” says Akers, who today is swimming again and is also training for a half marathon being held in July to raise money for the Crohn’s and Colitis Foundation. “I had tubes and monitors in every direction, but even with the new scars and holes and wounds, I still felt remarkably better. There was no more pain or bloating. Just days after I could tell a difference.”

She participated in a road race just three weeks after colon removal surgery. She was living true to the rallying phrase, “No colon, still rollin’,” used by other young adults who have had UC.

While not a first choice, the surgical procedure, which is frequently done in two operations, can be a best option for treating chronic UC when medical therapy has failed. Akers’ surgeries began June 21, 2013, with University of Michigan Health System colorectal surgeon Karin Hardiman, M.D., Ph.D., completing the second step during a one-hour surgery on Sept. 13.

“Before the surgery, I was intimidated by how many things could go wrong, but the promise of what could go right was so strong and so sweet,” says Akers, who counsels other IBD patients and raises money for the Crohn’s and Colitis Foundation. “It’s a disease that’s hurt so many, but with support, I learned how to fight back.”

How can we help?

The sooner patients with IBD and other gastrointestinal conditions get evaluated by the right specialists, the sooner they can get an accurate diagnosis and begin treatment.

The University of Michigan Health System is home to one of the largest digestive health and liver disease programs in the country, with 60-plus physicians providing prevention, diagnosis and treatment of diseases involving the gastrointestinal tract and liver. Specialty programs include:

- Colorectal Cancer Diagnosis, Treatment and Prevention
- Cirrhosis Program
- Multidisciplinary Colorectal Cancer Program
- Cancer Genetics Program
- Crohn’s and Colitis (IBD) Program
- Esophageal Disorders Program
- Functional Bowel Disorders Program
- Gastroparesis and GI Motility Disorders Program
- Hepatology (Liver Disorders) Program
- Interventional Endoscopy Program including EMR
- Liver Transplant Program
- Liver Tumor Program
- Michigan Bowel Control Program
- Pancreas Program
- Small Bowel Program
- Viral Hepatitis Program
- Wilson Disease Center of Excellence

Digestive Health and Liver Disease physicians maintain offices in Ann Arbor, Brighton, Canton, Dexter, Grand Rapids, Livonia, Saline and, beginning in July, Northville. Learn more about the programs available at UofMHealth.org/gi.
Costs vary widely for care of children with congenital heart defects

The cost of care for children with congenital heart disease undergoing surgical repair varied as much as nine times across a large group of U.S. children’s hospitals, according to new research published in Pediatrics.

“Before we conducted this study, there was limited information on the costs associated with caring for these children, even though this is one of the most common and expensive conditions treated across children’s hospitals,” says lead author Sara K. Pasquali, M.D., M.H.S., associate professor of pediatrics at the University of Michigan Medical School and C.S. Mott Children’s Hospital Congenital Heart Center.

Pasquali and her co-authors studied 12,718 patients from 27 U.S. children’s hospitals and found wide variation between hospitals in costs associated with congenital heart surgery for nearly every operation examined. These differences were apparent even after accounting for differences in patient characteristics and for regional differences in cost.

VOLUMES, COSTS, OUTCOMES LINKED

The investigators also found that hospitals with higher case volumes had significantly lower costs for the most complex operations.

In the study, the highest cost hospitals had higher rates of post-operative complications, and their patients tended to stay in the hospital for a longer period of time after surgery. For example, the study found that hospitals with the highest costs after the Norwood operation had double the rate of major complications compared with hospitals with the lowest costs. In addition, the higher cost hospitals had an average length of stay after the Norwood operation nearly twice as long as the low-cost hospitals.

STANDARDIZING CARE COULD HELP

Initiatives aimed at reducing length of stay and complication rates have the potential to both improve quality and also lower costs. A recent study conducted by the U-M Congenital Heart Center showed that standardizing care for children with chylothorax after surgery led to earlier diagnosis, significantly reduced time on the ventilator and decreased length of stay.

“The cost variations we found in this study suggest there is ample room for improvement and also suggest a link between high-quality care and lower cost,” says Pasquali.

STUDY

Get linked to the study at Colleagues in Care Online at med.umich.edu/cic.

Physician profile

Sara Pasquali, M.D., M.H.S., is an associate professor in the Division of Pediatric Cardiology at C.S. Mott Children’s Hospital and is also a faculty member at the Center for Healthcare Outcomes & Policy. She received her undergraduate degree at U-M and medical degree from Duke University. She also has formal training in biostatistics and epidemiology, and earned a Master of Health Sciences degree from the Duke Clinical Research Training Program. Her research focuses on evaluation of outcomes and quality in children undergoing heart surgery. She co-directs the Michigan Congenital Heart Outcomes Research and Discovery (M-CHORD) Program at the Michigan Congenital Heart Center.
Histotripsy shows promise for ablating tissue with cavitation instead of heat.

Although initially we are exploring histotripsy as a BPH treatment, it is really a platform technology. It could potentially change paradigms for how surgical diseases are treated.

William Roberts, M.D.
Other uses

Researchers at U-M are also investigating histotripsy for non-surgical treatment of certain types of congenital heart defects in infants and even fetuses.

Currently, infants born with certain life-threatening defects require emergent surgery or catheter-based interventions to create a flow channel, a 4–5 millimeter hole in the heart that allows oxygen-rich blood to mix with non-oxygenated blood and then get delivered to the body. Using histotripsy, Gabe Owens, M.D., Ph.D., a pediatric cardiologist with C.S. Mott Children’s Hospital’s Congenital Heart Center, hopes to be able to create flow channels without any surgery — using only ultrasound.

Owens is collaborating with the team of biomedical engineers from the School of Engineering as well as with HistoSonics, an Ann Arbor-based company.

“Using different ultrasound settings, we can create micro-bubbles in the precise location where we want to create a flow channel, then deliver the energy that turns the bubbles into acoustic scalpels and creates the hole,” says Owens. “We’ve done significant pre-clinical testing and now have a prototype device designed for neonatal therapy. We plan to obtain FDA approval to initiate a clinical trial of histotripsy for congenital heart diseases in the coming years.”

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Results cannot be easily imaged until long after the procedure.

FIRST APPLICATIONS AND BEYOND

As a urologist, Roberts was naturally interested in the urologic applications of histotripsy. So, benign prostatic hyperplasia (BPH) was chosen as the first disease to be studied with histotripsy. The traditional surgical treatment for BPH is transurethral resection of the prostate (TURP), which is effective but requires significant time under anesthesia. This is increasingly relevant, as widespread use of medical management for BPH means the current patient population needing TURP is much older and at higher risk for complications than in the past.

Using histotripsy for BPH eliminates prostate tissue and debulks the transition zone in pre-clinical studies. This research showed enough promise for FDA approval of the current pilot clinical trial to evaluate safety in humans.

This trial at the University of Michigan, led by principal investigator John Wei, M.D., is currently looking for men with BPH over age of 50 who are candidates for definitive therapy, typically TURP or GreenLight laser. Other inclusion and exclusion criteria apply. If the pilot trial goes as well as expected, a multi-center trial and more enrollment opportunities will follow.

“Although initially we are exploring histotripsy as a BPH treatment, it’s really a platform technology,” explains Roberts. “It could potentially change paradigms for how surgical diseases are treated. Currently, researchers and clinicians are also looking at how histotripsy might be used to treat prostate cancer, small renal masses in the kidney, stone disease, liver cancer, congenital heart syndromes and thrombosis.”

BORN AT THE UNIVERSITY OF MICHIGAN

Histotripsy was conceived at the University of Michigan over 10 years ago, and the initial proof of concept was demonstrated by the Histotripsy Research Group, led by Charles A. Cain, Ph.D., professor of Biomedical Engineering. This group also includes Roberts and three other Biomedical Engineering faculty, J. Brian Fowlkes, Ph.D., Zhen Xu, Ph.D, and Timothy L. Hall, Ph.D.

In 2009, the research group realized the need for a commercial partner to further translate histotripsy for clinical use, so a company called HistoSonics was formed. HistoSonics built the human prototype histotripsy system, the Vortx RX, that was approved by the FDA for the pilot human trial.

“This technology and translational research of histotripsy would not be possible without the collaboration and support of many individuals, institutions and foundations,” says Roberts. “So it’s exciting for everyone, because we believe that histotripsy has the potential to transform many areas of surgical and medical care.”

REFER

To refer a patient to the pilot clinical trial for treating BPH with histotripsy, please call Jean Humrich at 734-232-4863.
Clinical benefit should be considered in colorectal cancer quality measures

Clinical benefit should be considered in colorectal cancer quality measures

When it comes to preventive care in older patients, clinicians should strive to make decisions that are clinically sensitive, taking the individual’s overall health and preferences into account.

Sameer Saini, M.D.

M.D., a research scientist at VA-CCMR and assistant professor of Internal Medicine at the University of Michigan Health System. “By focusing on age alone, we’re not screening everyone who’s likely to benefit, and some people who are not likely to benefit are being screened unnecessarily, like those with severe health problems.”

“If quality measures focused on age and health status, rather than age alone, we’d have better outcomes,” he adds.

Most people who are diagnosed with colon cancer are older than 50. But in elderly patients, life expectancy varies considerably according to health status. For instance, a 74-year-old man who is in excellent health has a life expectancy of almost 15 years. The study suggests the upper age cut-off could unintentionally discourage screening for these healthy older individuals, leading them to miss out on the colorectal screenings known to prevent cancer.

PREVENTION FOR THE RIGHT PEOPLE

Screening can often detect pre-cancerous growths, called polyps, in the colon and rectum. Although most polyps will not turn into cancer, removing them can prevent cancer from occurring. Colorectal screening — which includes colonoscopy, sigmoidoscopy and fecal occult blood testing — is credited with a 30 percent drop in colon cancer deaths in the past 10 years.

“Clinicians and patients should be aware of this potential unintended effect of quality measurement,” Saini says. “When it comes to preventive care in older patients, clinicians should strive to make decisions that are clinically sensitive, taking the individual’s overall health and preferences into account.”

Future patient-centered quality measures should focus on clinical benefit rather than age to ensure that patients who are likely to benefit from screening receive it, regardless of age, and that those who are likely to incur harm are spared unnecessary and costly care.

WATCH Dr. Saini explains more about the study in a video on Colleagues in Care Online at med.umich.edu/cic.

AGE is not enough

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Sameer Saini, M.D.

Both under and overutilization

“The way quality measures are defined has important implications for how care is delivered,” says lead study author Sameer Saini, M.D., a research scientist at VA-CCMR and assistant professor of Internal Medicine at the University of Michigan Health System. “By focusing on age alone, we’re not screening everyone who’s likely to benefit, and some people who are not likely to benefit are being screened unnecessarily, like those with severe health problems.”

“If quality measures focused on age and health status, rather than age alone, we’d have better outcomes,” he adds.

Most people who are diagnosed with colon cancer are older than 50. But in elderly patients, life expectancy varies considerably according to health status. For instance, a 74-year-old man who is in excellent health has a life expectancy of almost 15 years. The study suggests the upper age cut-off could unintentionally discourage screening for these healthy older individuals, leading them to miss out on the colorectal screenings known to prevent cancer.

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Shun the sun

Brief exposure to UVA1 rays starts skin-aging process

A low level of daily exposure to a common component of sunlight and tanning bed light can cause skin damage at the molecular level after just a few days, U-M dermatology research shows. The findings highlight the need for better sunscreens to protect against these damaging rays and prevent the process that can cause skin to look old, wrinkled and sagging prematurely.

For physicians, the findings offer more ammunition when counseling patients on sun exposure and tanning bed use.

IT JUST TAKES TWO
Writing in *JAMA Dermatology*, the researchers show that damage starts after just two daily exposures to a low amount of ultraviolet A1, or UVA1, light. UVA1 makes up most of the UV light throughout the day and tanning bed light, too. The damaging process kept going after further daily exposures.

The researchers measured the effects of UVA1 at the molecular level using advanced gene expression analysis of skin samples from human volunteers. They focused a low level of pure UVA1 rays, as might be encountered in daily life, on small areas of 22 volunteers’ buttocks. A day later, they measured changes in skin pigmentation. Then, they took tiny samples of skin, in order to detect which genes had been “turned on” by the light exposure. They repeated this process three more times on each participant.

EARLY BREAKDOWN
After just two exposures, UVA1 rays caused skin cells to make molecules that break down collagen, which makes skin firm, smooth and youthful in appearance. UVA1 also caused the skin to darken a little with each exposure, but this tan didn’t protect against further production of the collagen-destroying molecule, called matrix metalloproteinase 1, or MMP1, when the skin was exposed to more doses of UVA1.

U-M dermatologist and lead author Frank Wang, M.D., notes that he often observes the collagen-damaging effects of repetitive sun or tanning booth exposure in people in their 20s and 30s who come in for other conditions, but have clear signs of premature aging to their skin.

Very few of the ingredients in sunscreen effectively protect against UVA1. The new findings suggest a need for new sunscreen ingredients that can protect against UVA1 rays, beyond zinc oxide and avobenzone. Window glass and most clothing also don’t necessarily filter out all UVA1, which is present whenever it’s daytime.

The study was done by a team from the U-M Department of Dermatology’s Photobiology and Aging Skin Research Program, led by Gary Fisher, Ph.D.

The new findings suggest a need for new sunscreen ingredients that can protect against UVA1 rays, beyond zinc oxide and avobenzone.
Electrophysiologist Eric D. Good, D.O., has implanted the state’s first patient with BIOTRONIK’s Iforia heart device, the only implantable cardioverter-defibrillator (ICD) approved for investigational use in magnetic resonance imaging. The device is commercially available, but is in the newest phase of the ongoing ProMRI® trial.

The strong magnetic forces applied during MRIs can potentially have a negative effect on both ICDs and leads, and are usually not recommended for pacemaker and ICD patients.

"We were able to successfully treat the first patient in the study using endovascular means only," says Patel. "These results demonstrate the feasibility of using branched stent-grafts to treat aortic aneurysms that involve the left subclavian artery."

Patel leads a multidisciplinary team that will coordinate the study at U-M, one of only six hospitals in the country using the investigational device.

Investigational device treats thoracic aortic aneurysms endovascularly

Thoracic aortic aneurysms that encroach on the aortic arch are challenging anomalies that are very difficult to treat. They leave physicians no choice but to use more invasive surgical techniques or to cover the aortic branch vessel.

An investigational device — the Gore® TAG® Thoracic Branch Endoprosthesis — opens the door to a safe and less invasive treatment alternative by sealing off the hard-to-treat section of the aorta.

**PATIENT NO. 1**

Himanshu Patel, M.D., cardiothoracic surgeon; David M. Williams, M.D., vascular interventional radiologist; and Jon Eliason, M.D., vascular surgeon, performed the world’s first implantation of the device at the U-M Frankel Cardiovascular Center. The procedure marks the beginning of “Evaluation of the Gore® TAG® Thoracic Branch Endoprosthesis in the Treatment of Proximal Descending Thoracic Aortic Aneurysms,” a U.S.-based, multi-center feasibility study sponsored by W.L. Gore & Associates.

Through thoracic branch technology and design, the device fits the unique characteristics of the descending aorta, allowing physicians to treat a subset of patients who could not be considered for total endovascular repair in the past. It may reduce the need for invasive surgical procedures commonly required today, thus reducing the complications associated with treatment of this complex disease.

Thoracic aortic aneurysms are less common than abdominal aortic aneurysms, but a TAA rupture remains a fatal event. The risk of rupture and a patient’s overall health determine whether the patient is a candidate for surgery.

An ICD safe for MRI

Endovascular repair uses real-time X-ray and guidewires to help deliver a graft via catheter to exclude the lesion inside the diseased aorta, making a new path for blood to flow.

"This technology is intended to allow full diagnostic capabilities for our patients who are likely to benefit from MRI scans," says Good.

Every year, more than 300,000 people are implanted with ICD systems to regulate their heart beat, and studies estimate that 50 percent to 75 percent will need an MRI scan in their lifetime.

STUDY Learn more about eligibility criteria for this study or find other cardiovascular studies your patients could benefit from at umclinicalstudies.org.
A new study finds that the majority of women who undergo mastectomy for breast cancer go on to get breast reconstruction, a practice that has increased dramatically over time. Researchers found that 46 percent of patients received reconstruction in 1998, but that figure rose to 63 percent by 2007.

“Breast reconstruction has a big impact on quality of life for breast cancer survivors. As we are seeing more women survive breast cancer, we need to focus on long term survivorship issues and ensuring that women have access to this important part of treatment,” says study first author Reshma Jagsi, M.D., D.Phil., associate professor of radiation oncology at the University of Michigan Comprehensive Cancer Center.

The researchers, from academic medical centers and private practice, looked at insurance claims data from the MarketScan Commercial Claims and Encounters database, a large nationwide employment-based database of medical claims. They identified a total of 20,506 women who had been treated with mastectomy for breast cancer between 1998 and 2007. Results appear in the *Journal of Clinical Oncology*.

**RADIATION A FACTOR**

While overall rates of reconstruction increased, women who received radiation therapy were less likely to get reconstruction. This is especially concerning as radiation therapy is increasingly being used after mastectomy as a way to further reduce the risk of the cancer returning in women with more aggressive or advanced disease.

The researchers note that reconstruction is more challenging after radiation, which limits the reconstruction options available for these patients. And often the results are not as good.

“As a growing number of women are eligible for radiation after mastectomy, we have to be aware that this alters those patients’ reconstruction options and outcomes. Patients’ and physicians’ concerns about how best to integrate reconstruction and radiation may be influencing patient decisions. We need to determine the best approach to reconstruction for women who receive radiation,” Jagsi says.

**GEOGRAPHIC DIFFERENCES**

The study also revealed dramatic variation in reconstruction based on geographic region, from a low of 18 percent in North Dakota to a high of 80 percent in Washington, D.C. This was largely associated with the number of plastic surgeons working in each state.

Other findings reported include:
- The rate of bilateral mastectomy increased six-fold between 1998 and 2007.
- Three-quarters of women receiving bilateral mastectomy also have breast reconstruction.
- More women are receiving implants rather than autologous reconstruction.

**WATCH** Videos about breast reconstruction at U-M are available at Colleagues in Care Online at med.umich.edu/cic.

**READ** Get linked to the full *Journal of Clinical Oncology* article at med.umich.edu/cic.
FIVE MINUTES WITH
ANDREW L. ROSENBERG, M.D.

Chief medical information officer, executive director of the Information & Data Management Division, associate professor of Anesthesiology and associate professor of Internal Medicine at University of Michigan Health System

What is the UMHS vision for the new electronic health care record Epic/MiChart?

Our vision for MiChart is extremely clear — we aim to make the exchange of information regarding the team-oriented care of patients seamless and easier than it has ever been for UMHS and referring physicians. We plan to do this by using the absolute latest technology available. This will help us increase efficiency, reduce the duplication of efforts and increase the amount of data available to referring providers. It will also let us continue to provide novel clinical research and health innovation programs that enable us to provide the highest level of care.

We know that a change of this magnitude is extremely challenging to navigate. We, along with other academic health systems, recognize the important role that electronic health records (EHRs) play in the future of health care. We also recognize that a transition to the latest EHR systems is critical to meeting the requirements for the “meaningful use” of certified EHR technology.

What lessons have you learned along the way?

No major transformation is without its hurdles, and as with any transition this large, we acknowledge that there has been and will continue to be a steep learning curve.

We are deeply aware of and extremely sensitive to the impact that this “under construction” atmosphere has on busy providers whose first priority is to care for patients. We are working very hard to educate our staff on topics such as summaries of care and discharge summaries, as well as to help educate our external partners on the implementation of applications such as the “Epic to Epic” Care Everywhere and “Epic to Non Epic” Care Elsewhere systems. More importantly for providers who will need to link into our system, we will have a provider portal “Epic Care Link,” which is the preferred intuitive solution for the exchange of patient information for providers whose EHRs are not directly linked to ours.

We thank all of you for sticking with us throughout this implementation process. We are confident that in the end this will help us all to provide better and more efficient patient care.