

Medical Directions



UW Hospital to offer groundbreaking, less-invasive procedure

3-D Virtual Colonoscopy

For years, physicians have been recommending that patients at risk to develop colon cancer, the second-deadliest cancer in the United States, undergo a conventional colonoscopy to screen for cancerous polyps. Unfortunately, concerns about the invasive, uncomfortable nature of the procedure deter many patients from following their physicians' advice.

A new technology may solve the problem. In a recent study published in the *New England Journal of Medicine*, Perry J. Pickhardt, MD, a UW Health radiologist and associate professor of radiology at the University of Wisconsin Medical School, found that three-dimensional computed

tomography (CT) colonography, also known as virtual colonoscopy, was able to detect more than 90 percent of significant colonic polyps in average-risk patients, a slightly better rate than conventional colonoscopy. UW Hospital and Clinics will be one of the few hospitals in the state to offer the procedure, expected to begin at the end of April.

The new technology allows radiologists to obtain 3-D images from different angles, providing a "movie" of the interior of the colon without having to insert a scope throughout the length of the colon.

"I believe virtual colonoscopy will eventually join conventional colonoscopy as a major component of colorectal cancer screening in the U.S.," says Dr. Pickhardt. "Because it's less invasive, we're hoping that more adults will seek screening, resulting in many additional lives saved."

Radiologists have been using CT colonography for years to detect polyps. The technology was effective, but primarily used 2-D images. With the addition of 3-D "fly-through" images, a virtual colonoscopy can show the whole picture,

3-D fly-through images provide detailed images of the colon's interior in a way that conventional colonoscopy can't.

providing precise and detailed images of the colon's interior in a minimally invasive manner. The procedure only takes about 15 minutes and carries other benefits: no risk of bleeding or perforating the colon, no need for intravenous sedation, and lower cost than conventional colonoscopy.

"Three-D Virtual colonoscopy results in a win for patients," states Pat Turski, MD, chairperson of radiology, UW Hospital and Clinics. "Dr. Pickhardt's findings not only make it possible for us to offer a much more pleasant, non-invasive screening to patients, but the efficiency of the technology makes the screening process much more streamlined."

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UWHealth

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New expert, new clinic

Moving on movement disorders

The relevant numbers in the diagnosis and treatment of idiopathic Parkinson's Disease all seem to be going up: The number of cases is growing as the U.S. population continues to age. The number of medical and surgical treatment options for the disease has grown in 40 years from one standard drug therapy to more than 1,000 choices. And, as the new director of the UW Health Movement Disorders Program attests, his arrival has boosted the average age of the UW program staff by about 15 percent.

"There's been an infusion of gray hair here," says Erwin Montgomery, MD, who joined UW Hospital and Medical School in August 2003. Montgomery brings more than 25 years of

experience in movement disorders care to the UW program, which now has a critical mass of experts focused on the comprehensive care of people with Parkinson's, essential tremor, dystonia and other movement disorders.

While some of the growth in Parkinson's can be attributed to earlier diagnosis of the disease, Montgomery says the peak hasn't arrived yet; the first of the "baby boom" generation (born between 1946 and 1964) is just now reaching age 58, the age at which Parkinson's is most often diagnosed. The causes of idiopathic Parkinson's remain elusive, but since the introduction of levodopa in 1960, the range of treatment options has grown to include

not only five preparations of that agent but several dopamine agonists, anticholinergics, and MAO- and COMT-inhibitors. Neurosurgical options include conventional procedures such as pallidotomy and thalamotomy and the newer deep-brain stimulation (DBS) procedures that can reduce or eliminate symptoms in many patients.

But the 40-year history of Parkinson's treatment has revealed a sobering conclusion, says Montgomery.

"The choices made early in treatment have a profound impact on the later course of the disease," he notes. "About a third of patients who start with levodopa face a severe risk of developing involuntary movements. But those started



Erwin Montgomery, MD

on dopamine agonists have a minimal risk. In the past, we would use levodopa all the time. But that approach now looks pennywise and pound foolish."

Montgomery's vision for the UW program is to provide sophisticated guidance to both patients and referring physicians in navigating the complex set of treatment choices. To date, he has found that most patients benefit from

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UW interventional cardiologists first in nation to use new "bridging" pump

Patients with weakened hearts, or who have had a massive heart attack, are often at high risk of serious complication during coronary interventions or heart surgery. Interventional cardiologists at UW Health led by Matthew Wolff, MD, director of UW Hospital's Cardiac Catheterization Lab, recently became the first in the nation to use a new device to sustain such patients until their hearts can recover and greatly reduce the risk of intervention or surgery.

The new pump, called TandemHeart, essentially pumps the patient's heart and sustains the patient's blood pressure until interventions or therapies are complete. Previously used only in clinical trials, the device was recently approved by the U.S. Food

and Drug Administration for clinical use in circulatory support.

The TandemHeart is about the size of a fist and is placed outside a patient's thigh. A tube is inserted through a large vein in the leg into the left side of the heart. A second tube is inserted into the patient's femoral artery, and the pump is connected to a micro-processing computer that takes over pumping the patient's heart during a procedure. The pump can be left in the body for hours to weeks, and then weaned off. In cases of severe heart failure, the patient can be referred for heart transplantation or a surgically implanted LV assist device.

For more information, call (608) 263-6796.



Image courtesy of Cardiac Assist



UW Cancer network adds Johnson Creek

The UW Regional Cancer Network will expand in 2005 with a state-of-the-art cancer treatment center to be known as UW Cancer Center Johnson Creek. The center will be located between Madison and Milwaukee, just south of the junction of Interstate 94 and Highway 26.

A joint project among Fort HealthCare, UW Health and Watertown Memorial Hospital, UW Cancer Center Johnson Creek will provide patients and families with convenient access to cutting edge research and treatment protocols in a nurturing, compassionate and hope-filled environment.

Affiliated with the University of Wisconsin Comprehensive Cancer Center, UW Cancer Center Johnson Creek will be

a 13,500 square-foot facility located south of the Johnson Creek Outlet Mall, across I-94 and adjacent to the Johnson Creek Medical Center on Doctors Court. Ground breaking for the new facility is expected to take place in mid-April, with completion expected by early 2005. Discussion among the three partners began in December 2002, after Fort HealthCare and Watertown Memorial Hospital independently considered options for expanding current on-site oncology services. While outpatient cancer services exist at both hospitals, neither could individually offer the comprehensive, state-of-the-art and seamless cancer care services available in Madison and Milwaukee. The need to provide convenient and comprehensive care for a population of more

than 150,000 individuals within the extended service area was crucial.

The new UW Cancer Center will assist patients and their families in coping with a cancer diagnosis, offer cutting-edge treatment and help them navigate the complicated process of receiving quality cancer care. Core services will include cancer treatment, prevention and education. Specific services will include medical oncology, radiation oncology, chemotherapy treatment and access to clinical trials.

The center will offer on-site intensity modulated radiation therapy (IMRT), as well as treatments that combine medical imaging, 3-D simulation, treatment beam shaping, and respiratory monitoring. The

center will include support groups, educational programs, complementary medicine and a comfortable décor. Lynda Persico, BS, RTT has been hired as the director to provide strategic planning leadership and direction for the activities of this new venture.

“UW Cancer Center Johnson Creek truly exemplifies the UW Comprehensive Cancer Center’s commitment to providing the best in cancer treatment, research and educational initiatives,” says George Wilding, MD, Director of the UW Comprehensive Cancer Center. “Together we will advance the cancer-care agenda.”

For more information, contact (608) 219-1709.

3-D Virtual Colonoscopy *from page 1*

The study by Dr. Pickhardt and colleagues involved both same-day conventional and virtual colonoscopy on 1,233 asymptomatic adults, 97.4 percent of whom were at average risk of having colonic polyps. Overall, virtual colonoscopy detected more than 90 percent of significant polyps and detected 92.6 percent of polyps eight

mm. and greater in size, versus an 89.5 percent detection rate for conventional colonoscopy. Two malignant polyps were present: virtual colonoscopy detected both of them, while conventional colonoscopy missed one.

According to Dr. Pickhardt, most polyps that are missed at virtual colonoscopy are small

(5 mm or less) and are of little or no clinical importance. In addition, virtual colonoscopy can identify polyps that are located behind folds in the colon lining and may be missed by conventional colonoscopy. For more information, contact (608) 263-9028.



Perry Pickhardt, MD

Family-centered Inherited Arrhythmias Clinic in the works

By definition, an inherited abnormal heart rhythm is a family concern. So it only makes sense for parents and children to be treated together rather than in separate adult and pediatric cardiology clinics.

“Inherited arrhythmias, while rare, can be very serious business,” says Kathleen Maginot, MD, director of pediatric electrophysiology and pacing at UW Children’s Hospital. “In cases of Long-QT Syndrome and other heart rhythm abnormalities, a patient’s first episode could be his or her last. For this reason, we want to do everything we can to treat every member of the family under one umbrella.”

Maginot and Craig January, MD, an adult cardiologist at UW Hospital and Clinics with extensive research credentials in inherited arrhythmias, plan to formally launch an Inherited Arrhythmias Clinic later this year.

January says potential patient families for the Inherited Arrhythmias Clinic will be screened before they are seen.

“We expect the clinic to begin scheduling patients by this summer,” he says.

More information on the Inherited Arrhythmias Clinic is available by contacting Jayme Frank, PNP, at (608) 263-8776.

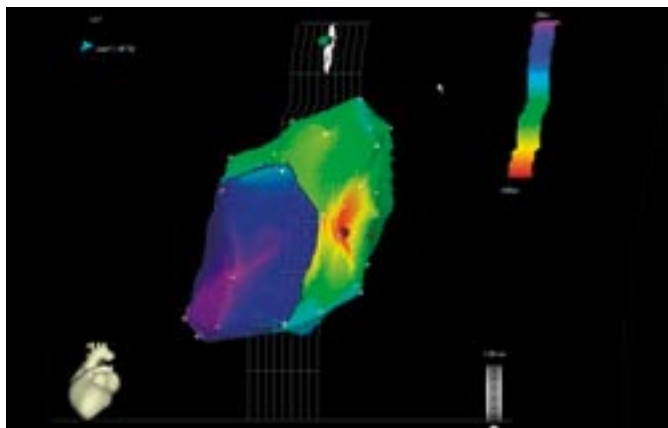


Kathleen Maginot, MD

Although rare, heart arrhythmias in children can be troublesome and sometimes lethal if not treated properly.

Last year, a new pediatric electrophysiology and pacing (pediatric EP) program was created at UW Children’s Hospital, giving referring physicians and parents a convenient, curative treatment option for children who present with abnormally fast heart rhythms such as Wolf-Parkinson-White (WPW) syndrome.

Palpitations, light-headedness, shortness of breath, chest discomfort and fainting are a few of the typical symptoms children may experience with arrhythmias that cause the heart to pump abnormally. Now, a highly trained subspecialist in Madison is available for those children diagnosed with a heart rhythm abnormality.



Treating lethal childhood arrhythmias

Pediatric EP program offers curative treatment

“Children from Wisconsin can now be seen in Madison, often traveled out of state to obtain treatment for heart rhythm problems, and now they can be seen in Madison,” says Kathleen Maginot, MD, the new director of pediatric electrophysiology and pacing at UW Children’s Hospital.

Radiofrequency ablation was first performed on children in the U.S. in the late 1980s. The catheter procedure identifies and cures the arrhythmia by eliminating an abnormal electrical circuit in the heart. As a curative treatment, catheter ablation has virtually replaced the need for high-risk ablation surgery or an indefinite course of medication that can cause side effects such as fatigue, exercise intolerance and diminished heart function.

The procedure takes two to four hours. “Once everything is ready to go, we insert a catheter into the heart through a vessel in the neck and thighs,” says

Maginot. “Then, after we pinpoint the site of the arrhythmia, we move the catheter to the site. Through use of a technique called radio-frequency ablation, we eliminate the site of the arrhythmia.”

Maginot notes that UW Children’s Hospital offers families the very latest care to ensure the best outcome for their child.

“Very few hospitals offer biplane fluoroscopy with cineangiogram capability,” Maginot says. “This technology gives us an extra camera angle, yielding incredibly precise imagery of the ablation site.” Intra-cardiac mapping catheters and state-of-the-art equipment allow for standard and 3-D electro-anatomic mapping of simple and complex arrhythmias.

Most ablation patients go home the day of the procedure, Maginot says, and are able to return to full activity within a week.

“The real satisfaction for me is seeing these kids grow up living a normal, healthy life,” Maginot says. “It’s enormously rewarding, especially when our patients and their parents stay in touch over the years.”

This 3-D electroanatomic map uses signals from a mapping catheter to pinpoint the origin of the abnormal signal. The small red circle indicates the location where radiofrequency energy was applied to eliminate an abnormally fast rhythm.

Replacement-surgery specialist joins UW orthopedics team

Total expertise for elbows, shoulders

Located at a complex intersection of nerves, muscles, blood vessels and tendons, the elbow can be a very complex area for surgeons. Since few doctors specialize in elbow surgery, patients with severe joint pain or serious fractures are often left without a specialized treatment option.

UW Health's department of orthopedics has recently added Robert Ablove, MD, an orthopedic surgeon who specializes in both total shoulder and total elbow replacement surgery.

"I don't think too many practitioners are even aware that elbow replacement is an option," says Ablove, who received training in elbow and shoulder replacement from Edward V. Craig, the former president of the American Society of Shoulder and Elbow Surgery. "As a result, patients unnecessarily suffer from painful, stiff elbows."

Elbow and shoulder replacements are less common than hip and knee replacement, because there is normally less wear and tear on those joints, and patients often tolerate elbow and shoulder arthritis better than hip and knee conditions. For those who don't, surgery can offer relief.

"The primary reason for doing a total elbow or shoulder replacement is pain—such as that experienced by patients with serious degenerative or rheuma-

toid arthritis," explains Ablove. Another subset of candidates for the procedures includes patients with unreconstructable joint fractures.

Total shoulder and elbow replacement are more common in older patients, because the prostheses tend to have a finite life expectancy—usually around 15 years—and because the condition of younger patients suffering from joint problems can often be improved without surgery.

The modern elbow prosthetic has been in use since the early 1980s, and is semi-constrained, allowing for early motion with greatly enhanced stability. Shoulder prosthetics, meanwhile, have entered a modular era, using an eccentric head that allows surgeons to better match a patient's individualized anatomy. Instrumentation has also improved, says Ablove. "You used to make your saw cuts pretty much freehand or with a little template, but now the cutting guide is attached directly to the bone—there's more control over where you're making your cuts." The condition of the rotator cuff is still the prime factor in determining whether a patient is a candidate for total versus partial shoulder replacement.

Older patients with severe elbow fractures can, at times, do well without surgery, but that's not the case with displaced shoulder fractures. In signif-



Image courtesy of Zimmer Inc.

The Coonrad-Morrey elbow prosthetic is semi-constrained, allowing for enhanced stability.

icantly displaced shoulder fractures in older patients, acute replacement often provides a better, more functional outcome. "If the fragments of bone attached to the rotator cuff are significantly displaced and nothing is done, the muscle will ultimately atrophy and make delayed surgery significantly less successful."

Patients who undergo elbow and shoulder replacement can expect to return to normal, pain-free daily activity, but not to resume sports like tennis, golf or bowling. "If someone goes back to playing golf, the shoulder will wear out," explains Ablove.



Robert Ablove, MD

For more information or to schedule a consultation, contact the department of orthopedics at (608) 263-7540.

—Aaron R. Conklin

*Soy and green tea among compounds to be tested***UWCCC selected by NCI as a leader of cancer prevention study**

Can soy or green tea compounds prevent people at high risk of developing cancer from actually getting the disease? Thanks to a recent grant from the National Cancer Institute, the UW Comprehensive Cancer Center (UWCCC) plans to help find the answer.

As part of a \$42 million NCI chemoprevention research endeavor, the UWCCC was selected as one of six consortium institutions that will lead early-phase clinical trials aimed at reducing the incidence of cancer, including the most common cancers of the skin, mouth, esophagus, lung, breast, colon, bladder and prostate.

Howard Bailey, MD, a medical oncologist, will lead the UWCCC

consortium. Patient recruitment for these trials is expected to begin this fall

Based on pre-clinical or epidemiologic evidence of cancer preventive properties, the following compounds may be among those tested as possible cancer preventives over the next few years:

- Cyclooxygenase (COX) inhibitors. COX is an enzyme produced by many precancerous tissues. Aspirin and celecoxib are agents that inhibit COX and have already been shown to prevent certain cancers, but other agents within this diverse class of compounds may also prevent disease.
- Statins. Statins are drugs that block cholesterol production by inhibiting the enzyme HMG-CoA reductase and are commonly used as a treatment for heart disease. Because the enzyme HMG-CoA also regulates cell growth, it is believed that statins may play a role in cancer prevention as well.
- Tea Polyphenols (green tea). Compounds in tea leaves are natural plant antioxidants. Several cancer preventive properties have been suggested by observational studies of these compounds.
- Soy Isoflavones. A group of compounds found in and isolated from the soybean, isoflavones function as

antioxidants, and some produce hormonal and non-hormonal effects, all of which may result in cancer prevention.

Most of the compounds will be taken in pill form, although some—such as the skin cancer agents—will be administered topically, Bailey says.

Bailey said the UWCCC-led consortium will be seeking 75 to 100 patients a year for three to five years.

More information is available by contacting Cancer Connect at (800) 622-8922 or at uwccc@uwccc.wisc.edu.

—Michael Felber

*Extended treatment time window after onset of stroke symptoms***“Bat saliva” drug offers hope for acute stroke treatment**

The use of a synthetic drug derived from the saliva of vampire bats appears to extend the time window for treatment of acute ischemic strokes from the current three to nine hours after symptoms first appear, according to the results of a new international study.

The results of the DIAS trial (Desmoteplase in Acute ischemic Stroke) show that the drug desmoteplase is effective in

preventing brain damage from stroke if administered between three and nine hours after symptoms begin. UW Medical School is one of the test sites for an ongoing U.S. study, DEDAS (Dose Escalation Study of Desmoteplase in Acute ischemic Stroke), designed to identify the appropriate dosage and effectiveness of the drug.

Howard Rowley, MD, associate professor of radiology at UW Medical School, is the lead radiologist for the DEDAS

national study and a member of the UW team testing it with patients in Wisconsin. George Newman, MD, professor of neurology, and Ross Levine, MD, associate professor of neurology, are the primary UW investigators on the study.

“This new approach to acute stroke treatment is novel in two ways: It uses an improved clot-dissolving drug, and also takes advantage of new MRI techniques to help select the

right patients for treatment,” says Rowley.

Desmoteplase is a genetically engineered version of a blood clot-dissolving protein from the saliva of the vampire bat, *Desmodus rotundus*. Desmoteplase is able to dissolve a blood clot without affecting the rest of the body’s clotting system and without increasing the risk of intracranial bleeding.

For eligible patients, administering desmoteplase allowed the blood flow in the damaged

area of patients' brains to be reestablished and the area of damage limited.

The treatment of acute stroke and its serious long-term disabilities is, up to now, only possible with an approved agent (t-PA, tissue plasminogen activator) that must be administered within three hours after the onset of stroke symptoms, allowing only a small fraction of all stroke patients to benefit from such a therapy. With the findings of the DIAS study, more patients may benefit. If the promise of desmoplase is

borne out in further clinical trials, the drug may reduce stroke's burden of disability, and help more people sustain a near-normal life following a stroke—especially individuals located in rural areas who must travel to receive care..

Phase III of the study is expected to commence in upcoming months with the goal of proving clinical effectiveness and moving one step closer to FDA approval.

—Teri Shore

Movement Disorders *from page 2*

a restructured medication regimen. Those who have exhausted pharmaceutical choices may be candidates for DBS, which has been offered at UW Hospital since 2001 by Charles Garell, MD.

DBS' mechanism of action isn't well understood, although its effectiveness for symptoms—possibly including mood disorders and cognition—in many Parkinson's patients is being confirmed. Montgomery's own research program focuses on DBS in nonhuman primates, while others in the movement disorders program conduct other basic investigations along with multiple clinical trials.

On the clinical side, Montgomery's plans include greater use of

ancillary support systems for Parkinson's patients, including clinical psychology, speech pathology for voice problems and neuroradiological tools and techniques to evaluate brain function. He judges his success on the basis of how much better referring physicians are able to care for their movement-disorders patients.

"We view ourselves as a resource for the primary-care physician," he says. "My motto comes from 'Ulysses' by Alfred, Lord Tennyson: 'How dull it is to pause, to make an end, to rust unburnish'd, not to shine in use!'"

—Lisa Brunette

Hyperparathyroidism may be under-detected

It's estimated that one percent of individuals over age 60 suffer from primary hyperparathyroidism, a condition in which a tumor develops in one of the body's four parathyroid glands, causing excess hormone production and elevated blood calcium levels. Herbert Chen, MD, an endocrine surgeon with UW Health, is convinced the number is significantly higher. "I think it's as high as 2 to 4 percent," he says.



Herbert Chen, MD

"There are people walking around with hyperparathyroidism, but nothing seems to be wrong, so we don't check for it."

The elevated calcium in the blood results from the breaking down of bones, making hyperparathyroidism a hidden precursor of osteoporosis. Its symptoms include bone pain and fractures, but also several indistinct symptoms that may be mistakenly attributed to aging: fatigue, high blood pressure, constipation, and thinking and memory problems.

"When patients get osteoporosis, as many women do, the condition may be attributed to aging as opposed to hyperparathyroidism, which is a very reversible process," says Chen.

Surgery is the only curative treatment for hyperparathyroidism. In 2001, endocrine surgeons under the direction of Chen developed a minimally invasive parathyroid operation that can be performed under local anesthesia. Pre-operative scans determine which of the four glands is affected; surgeons then use a special probe to remove it. A patient's blood levels can be checked instantly to see if the parathyroid hormone levels have returned to normal while they're still in the operating room. "We can determine if patients have been cured at the time of surgery," Chen says.

Chen recommends that physicians who encounter patients with osteoporosis or the vague symptoms of elevated blood calcium order serum calcium and serum parathyroid hormone tests to determine whether hyperparathyroidism is present. "We've found that we're catching more patients due to an increased interest in bone health," he adds. "And that's important. The longer you let the disease go forward, the worse the osteoporosis gets. The earlier you catch it, the more treatable it is." For more information, contact (608) 263-2521

—Aaron R. Conklin

MD News MD News MD News MD News MD News

George Wilding, MD, was named director of the UW Comprehensive Cancer Center in January.

The University HealthSystem Consortium named UW Hospital and Clinics a “best performer” in providing the safest, fastest **heart attack care** as part of a benchmark study on core measures for Acute Myocardial Infarction (AMI), or heart attack care.

UW Hospital achieved the best overall score, outperforming 60 other medical centers in the study on eight criteria

critical to providing optimal care for patients with acute myocardial infarction. The study evaluated records of patient care from the past nine months. The comparison of UW Hospital with other hospitals in the study, and with national statistics, showed:

- The mortality rate for patients at UW Hospital was only half the rate that would be expected based on severity of illness across the nation.
- The earlier coronary angioplasty is used, the more effective it is in reducing heart damage and death.

UW Hospital’s average time is lower than 90 minutes and has been as low as 33 minutes. (Nationally, the ideal “gold standard” for the time from ER arrival to balloon angioplasty in the catheterization lab is 90 minutes, while 120 minutes is acceptable.)

- Critical life-saving medications such as aspirin and beta blockers are used at UW Hospital 98-100 percent of the time.



The newly remodeled acute rehabilitation unit features many patient-friendly touches.

In early March, UW Hospital and Clinics opened a newly remodeled **acute rehabilitation care unit**. The 21-bed, ADA-accessible unit features private rooms, in-room ceiling lifts, patient and family dining and lounge areas and a wander guard system.

UW Hospital and Clinics’ **Medical Records Department and Radiology Image Management** moved to a new location in April: 8501 Excelsior Drive, Madison, WI 53717. To request release of information, call (608) 263-6030; to request medical files, call (608) 263-6060.



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