How Interacting with Your Patients Through Electronic Medical Records Improves Healthcare

By David L. Longworth, MD
Chairman, Medicine Institute, Cleveland Clinic

Not long ago, medical records were largely the province of healthcare providers and insurers. Today, electronic medical records provide patients with an unprecedented range of information about their healthcare. Cleveland Clinic has been a leader in the use of electronic medical records, with a focus on patient access. We believe this transparency enhances patient-doctor communications and empowers patients to be more engaged in their medical care, thus improving healthcare quality.

Cleveland Clinic’s MyChart®, a secure online portal, was launched nearly a decade ago, as part of our “Patients First” initiative. Since then, MyChart has continually expanded patients’ access to their digital medical records. The web portal now allows patients to make appointments and access test results, prescription information, health issues, physician notes, preventive care details and other parts of their health records. We have also initiated patient messaging through MyChart.

WHY PATIENT PARTICIPATION IS IMPORTANT

These timely communications enable patients to ask questions and foster the doctor-patient relationship. This can be particularly valuable for managing chronic diseases such as hypertension and diabetes. It is important for primary care physicians to encourage patients not just to sign up for MyChart, but to use it and participate as active partners in their healthcare.
Services for Physicians

REFERRING PHYSICIAN CENTER AND HOTLINE

Cleveland Clinic’s Referring Physician Center has established a 24/7 hotline — 855.REFER.123 (855.733.3712) — to streamline access to our array of medical services. Contact us for information on our clinical specialties and services, to schedule and confirm patient appointments, for help resolving service-related issues, and to connect with our specialists.

PHYSICIAN DIRECTORY

View all Cleveland Clinic staff online at clevelandclinic.org/staff.

TRACK YOUR PATIENT’S CARE ONLINE

DrConnect is a secure online service providing real-time information about the treatment your patient receives at Cleveland Clinic. Establish a DrConnect account at clevelandclinic.org/drconnect.

CRITICAL CARE TRANSPORT WORLDWIDE

Cleveland Clinic’s critical care transport teams and fleet of vehicles are available to serve patients across the globe.

• To arrange for a critical care transfer, please call 216.448.7000 or 866.547.1467 (see also clevelandclinic.org/criticalcaretransport).

• For STEMI (ST elevated myocardial infarction), acute stroke, ICH (intracerebral hemorrhage), SAH (subarachnoid hemorrhage) or aortic syndrome transfers, call 877.379.CODE (2633).

OUTCOMES DATA

View clinical Outcomes books from all Cleveland Clinic institutes at clevelandclinic.org/outcomes.

CME OPPORTUNITIES: LIVE AND ONLINE

Cleveland Clinic’s Center for Continuing Education’s website offers convenient, complimentary learning opportunities. Visit ccfcme.org.

EXECUTIVE EDUCATION

Cleveland Clinic has two education programs for healthcare executive leaders — the three-day Executive Visitors’ Program and the two-week Samson Global Leadership Academy immersion program. Visit clevelandclinic.org/executiveeducation.

SAME-DAY APPOINTMENTS

Cleveland Clinic offers same-day appointments to help your patients get the care they need, right away. Have your patients call 216.444.CARE (2273).

CONSULT QD BLOG FOR PHYSICIANS

Discover the latest research insights, innovations, treatment trends and more. Visit clevelandclinic.org/ConsultQD.

About Cleveland Clinic

Cleveland Clinic is an integrated healthcare delivery system with local, national and international reach. At Cleveland Clinic, more than 3,000 physicians and researchers represent 120 medical specialties and subspecialties. We are a nonprofit academic medical center with a main campus, eight community hospitals, more than 75 northern Ohio outpatient locations (including 16 full-service family health centers), Cleveland Clinic Florida, Cleveland Clinic Lou Ruvo Center for Brain Health in Las Vegas, Cleveland Clinic Canada, Sheikh Khalifa Medical City and Cleveland Clinic Abu Dhabi.

In 2014, Cleveland Clinic was ranked one of America’s top hospitals in U.S. News & World Report’s annual “Best Hospitals” survey. The survey ranks Cleveland Clinic among the nation’s top 10 hospitals in 13 specialty areas, and the top hospital in heart care (for the 20th consecutive year) and urologic care.

Stay Connected to Cleveland Clinic
DIAGNOSIS:

High-risk Anticoagulation Patients

A conversation with Oussama Wazni, MD, and Walid Saliba, MD
Co-Directors, Cleveland Clinic’s High-risk Anticoagulation Clinic

Whom should PCPs refer to the High-risk Anticoagulation Clinic?

Any patients who have atrial fibrillation with a history of bleeding (whether in the stomach, intestines or brain) who cannot take traditional anticoagulant medications are appropriate to refer to our clinic. Effectively reducing their stroke risk is still possible.

Why is a multidisciplinary approach key for this patient population?

Today, new medications and procedures are available to help patients who cannot take traditional anticoagulants.

Cleveland Clinic’s Sydell and Arnold Miller Family Heart & Vascular Institute has combined specialists in electrophysiology, vascular medicine, gastroenterology and neurovascular medicine to provide a multidisciplinary approach to reducing stroke risk. Our High-risk Anticoagulation Clinic team will work together with your patients to assess their risk of stroke and bleeding and create an individualized care plan that best meets their needs.

In addition to the electrophysiology specialists, our team includes John Bartholomew, MD (Vascular Medicine); Sunguk Jang, MD, and Chung-Jyi Tsai, MD, PhD (Gastroenterology and Hepatology); and Muhammad Shazam Hussain, MD (Neurovascular Medicine).

What can patients expect?

Based on their medical history, patients will have specialized blood work and imaging tests (electrocardiogram, comprehensive transthoracic echo, transesophageal echo, cardiac MR and multidetector CT scanning, EGD).

They will meet with a cardiologist from the High-risk Anticoagulation Clinic, who will review their records and medical history, perform a physical examination, review their test results, and provide them with an assessment and plan. If patients need to meet with one of the other multidisciplinary specialists, they will be consulted in one to two days.
Hyperlipidemia and Arrhythmias in Children

When these conditions are a family affair, Cleveland Clinic can help

Cleveland Clinic offers two multidisciplinary clinics for children and adults with genetic conditions requiring special expertise to diagnose and manage: hyperlipidemia and arrhythmias. Family-centered care in these clinics is provided by pediatric and adult clinicians, supported by genetics and the formidable resources of Cleveland Clinic.

Familial Hyperlipidemia Clinic

For people who inherit a defective gene that codes for the LDL receptor, or a mutation of apolipoprotein E or B, no amount of diet and exercise will lower cholesterol levels enough to protect against a cardiovascular event. For children with these genetic abnormalities, a pediatric endocrinologist and adult cardiologist in the Familial Hyperlipidemia Clinic can treat the entire family.

“We understand hyperlipidemia in children and how risk increases as the child grows. When dietary and other lifestyle changes are insufficient to lower risk, we are comfortable using medications normally prescribed for adults,” says Douglas Rogers, MD, Chairman of Pediatric Endocrinology.

“An important point, however, is that we can also treat the parents,” he continues. “In our experience, few parents of children with hypercholesterolemia know their cholesterol levels, and in most cases, a parent has dyslipidemia, too.”

Any child age 2 or older with a family history of dyslipidemia or premature heart attack (males prior to age 55, females prior to age 65), or a parent with LDL-C levels greater than 240 mg/dL or a medical condition such as diabetes,
hypertension, lupus, chronic liver or kidney disease, chronic treatment with glucocorticoids or sirolimus or history of organ transplantation, is at risk.

Children ages 2 through 8 should undergo a lipid screening if they have two or more risk factors.

Pediatricians are advised to obtain fasting lipid levels, or nonfasting cholesterol and HDL-C levels, on all children between the ages of 9 and 11, before the onset of puberty. Any child with an LDL-C greater than 130 mg/dL, a total-C minus HDL-C over 160 mg/dL or a fasting triglyceride level over 400 mg/dL should be referred.

Hyperlipidemia is treated first with diet modification. Families are instructed to avoid saturated fats and include stanols or sterols in the diet. These products compete with cholesterol for absorption in the gut.

Statins may be prescribed to children over age 10. "If the child has no other cardiovascular risk factors, we will start statin therapy when the LDL-C level reaches 190 mg/dL. If the child has a family history of early heart disease or significant risk factors for early heart disease, we recommend treatment at 160 mg/dL. The presence of diabetes or lupus requires treatment at 130 mg/dL," says Dr. Rogers.

In very rare cases of extremely high LDL, plasmapheresis may be advised.

High triglyceride levels can be treated with additional exercise, elimination of sugar and limitation of fats and oils. If levels remain high (over 400 mg/dL), omega-3 supplements and fenofibrates may be started. Patients with high triglyceride levels or mixed hyperlipidemia may be screened for a condition such as metabolic syndrome, type 2 diabetes or polycystic ovary syndrome.

Dr. Rogers and his colleagues also see patients with mixed hyperlipidemia. “Because this is a lifestyle issue, our dietitian teaches them how to choose appropriate foods, and we help them figure out how to balance calorie intake against activity levels,” says Dr. Rogers.

To make an appointment in the Familial Hyperlipidemia Clinic, please call 216.444.9353.

Inherited Arrhythmias Clinic

The Inherited Arrhythmias Clinic is a multidisciplinary effort aimed at managing electrical abnormalities associated with sudden cardiac death. With support from pediatric electrophysiologists, adult electrophysiologists and geneticists, the clinic provides comprehensive, family-centered care to patients with inherited arrhythmia disorders.

“These disorders are not very common, but they can be life-threatening,” says pediatric electrophysiologist Peter Aziz, MD, referring to long-QT syndrome, Brugada syndrome and catecholaminergic polymorphic ventricular tachycardia (CPVT).

Inherited arrhythmias are a common cause of sudden death in young athletes and are thought to be responsible for up to 15 percent of cases of sudden infant death syndrome. The goal is to identify at-risk children and institute preventive measures designed to avoid tragedies like these.

A history of sudden death in a family member should prompt referral to an arrhythmia specialist, as should exertional syncope or a personal history suggestive of arrhythmia. The entire family — child, siblings and parents — will be screened and offered treatment, as appropriate.

A genetic counselor participates in diagnostic testing. “If a parent has an abnormality, there is often a 50 percent chance each child will have it. This highlights the importance of a family-centered approach,” says Dr. Aziz.

Treatment depends on the arrhythmia subtype and may include medication such as a beta blocker, trigger avoidance or an implantable cardioverter defibrillator.

Because long-QT syndrome and CPVT are catecholamine-dependent, sports participation may need to be restricted. Fortunately, it’s not a hard-and-fast rule.

“Some children who are compliant with treatment and have appropriate safety mechanisms in place can play sports safely,” says Dr. Aziz.

For an appointment in the Inherited Arrhythmias Clinic, please call 216.444.4735.
New medical center takes a unique approach to treating challenging patients

A year ago, a patient with ulcerative colitis visited Mark Hyman, MD, at The UltraWellness Center in Lenox, Massachusetts. The patient had been hospitalized a dozen times, was on a TNF-alpha inhibitor and had low productivity and function. Applying the principles of functional medicine, Dr. Hyman restored the patient’s quality of life: She is off medication and has not returned to the hospital.

A patient-centered model of care, functional medicine addresses the root causes of disease using a systems-oriented approach. It considers the unique genetic makeup of individuals as well as lifestyle choices and environmental influences, such as exposures to toxins. “Functional medicine attempts to understand the body’s core physiological systems, then optimize, enhance, balance and restore normal function to those systems,” says Dr. Hyman. “The body is a complex, adaptive system, and medical practice needs to address disease through the lens of systems thinking and our biological networks. It is medicine not by organ, but by organism. It is medicine by cause, not by symptom.”

In September, Cleveland Clinic became the first major health-care organization to establish an independent functional medicine facility. Dr. Hyman serves as Director of Cleveland Clinic’s Center for Functional Medicine, a center created in collaboration with the Institute for Functional Medicine where Dr. Hyman serves as Chairman. At the center, a team of seven practitioners treats patients with a host of chronic conditions, including autoimmune diseases, cardiometabolic conditions, digestive disorders, neurological conditions, mood disorders, skin disorders, hormonal problems and more.

A PARADIGM SHIFT

Cleveland Clinic’s Center for Functional Medicine will provide clinical care as well as participate in research, education and training. The goal is to shift the paradigm from a conventional disease-centered focus of medical practice to a patient-centered, systems-based healthcare approach. Functional medicine is a science-based biomedical approach that brings emerging strategies for chronic disease into clinical care, including:

• An emphasis on food as medicine, nutrition, diet, exercise and mind-body medicine
• Leading-edge laboratory testing and diagnostic tools
• Prescribed combinations of drugs, botanical medicines, supplements, detoxification programs and/or stress management techniques

Using science, clinical wisdom and innovative tools to identify underlying causes of chronic conditions, healthcare professionals at Cleveland Clinic’s Center for Functional Medicine hope to remedy the dysfunctions both before and after disease presents itself. That mission is critical considering that more than
half of all Americans suffer from one or more chronic diseases and that over 75 percent of our healthcare expenditures are for chronic diseases that can be both prevented and treated with lifestyle choices.

PERSONALIZED CARE PLANS

Functional medicine centers on treating the patient, from genetic and biochemical as well as psychosocial perspectives rather than the disease. “If you have head pain, we call it migraine. If you have stomach pain, we call it reflux. But those are simply names we give to conditions shared by a group of people,” says Dr. Hyman. “Migraine isn’t the cause of the pain — it is the name of the type of pain. The causes might be multiple and different, and thus the treatments should be different depending on the causes.”

For instance, autoimmune disease can have multiple causes. It may be triggered by gluten creating increased intestinal permeability or leaky gut. It may be from an altered microbiome triggering an inflammatory response, or from environmental immunotoxins or autogens. Rather than treating the patient with an anti-inflammatory drug, functional medicine practitioners begin by asking why the immune system is irritated and treat the root causes while restoring a normal gut ecosystem and healing the leaky gut with probiotics, nutrients and more.

“The key is figuring out the root causes,” says Dr. Hyman. “Functional medicine is the map — the GPS system — that we use to navigate the landscape of chronic disease.” Practitioners at Cleveland Clinic’s Center for Functional Medicine will obtain each patient’s complete story, address lifestyle choices, organize the patient’s clinical imbalances and personalize therapeutic options.

“We are allies in helping primary care physicians optimize their patients’ health, getting at the root causes of illness and providing you back patients who are self-empowered and can practice self-care,” says Dr. Hyman. “We invite the institutes and the Cleveland healthcare community to refer their most challenging and chronic cases so that together we can create health.”

Contact the Center for Functional Medicine at 216.445.6900 or functionalmedicine@ccf.org or visit clevelandclinic.org/functionalmedicine.

Meet
Mark Hyman, MD

Director of Cleveland Clinic’s Center for Functional Medicine

Mark Hyman, MD, is a family physician, eight-time New York Times best-selling author and an internationally recognized leader in functional medicine. He is Chairman of the Board of Directors for the Institute for Functional Medicine, the global leader in functional medicine education. He also is founder and medical director of The UltraWellness Center, medical editor at the Huffington Post and on the Medical Advisory Board of The Doctor Oz Show. Dr. Hyman’s expertise is sought out by our nation’s leaders: He has testified on functional medicine before the White House Commission on Complementary and Alternative Medicine and before the Senate working group on healthcare reform, as well as participated in the White House Forum on Prevention and Wellness.

Our Team

A team of leaders in the field of functional medicine will work in tandem to treat patients at Cleveland Clinic’s Center for Functional Medicine:

Mark Hyman, MD – Center Director
Patrick Hanaway, MD – Medical Director
Dirk Parvus, MD
Melissa Young, MD
Trisha Howell, MSH, RD, LD/N, HHC – Nutritionist
Brigid Titgemeier – Health Coach
Laura Vuicich, BSN, RN

Meet Mark Hyman, MD

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By Eric A. Klein, MD

Prostate cancer can be hard to detect. Deciding what to do about it if we find or suspect it can be even tougher, for patients and their doctors. Of course we want to treat aggressive, potentially lethal prostate tumors. But we don’t want patients to endure needless worry and undergo unwarranted medical procedures if their cancer is slow-growing and not life-threatening.

Fortunately, a new technology is available that should help us with both of those challenges — prostate cancer detection and differentiation. It’s called fusion-guided biopsy, and Cleveland Clinic is the first medical center in Northeast Ohio to use the UroNav Fusion Biopsy System to examine patients in the biopsy procedure room.

Fusion-guided biopsy, which most health insurance plans cover, is a welcome addition to our arsenal of cancer-fighting tools. Here’s why it’s needed and how it works.

**Improvements in Diagnostic Tools Needed**

The existing methods we’ve used to look for prostate cancer haven’t improved much in the last three decades. The traditional digital rectal exam isn’t a very effective screening tool; probing with a finger can access only part of the gland, so we may miss some cancers. And by the time tumors grow large enough to be felt with the finger exam, they may be at an advanced stage.

The protein specific antigen (PSA) blood test, since 1994 a companion to the digital rectal exam for screening older men, measures levels of a protein that often go up when prostate cancer is present.

But other conditions besides cancer can elevate PSA levels. And there’s no clear-cut “normal” PSA level. Many men with a high PSA result don’t actually have prostate cancer, while some with low levels do.

If repeatedly worrisome PSA results point to the possibility of prostate cancer, we turn to a prostate biopsy to confirm the diagnosis. But like the digital rectal exam and the PSA test, this tool has limitations.

**Drawbacks of Random Biopsy**

To obtain prostate tissue for cancer testing, we poke a series of needles (between 12 and 24) into different areas of the gland, guided by ultrasound. We’ve used this method since the 1980s. The ultrasound images help us place the needles properly, but the pictures aren’t distinct enough for us to be able to tell cancerous from normal prostate tissue, so we can’t target and home in on suspicious areas for biopsy. In truth, we’re using a scattershot “blind” approach, hoping that, if a tumor is present, one of the needles will encounter it. These random biopsies can miss some harmful tumors, while turning up others that are inconsequential and may end up being treated unnecessarily.

An MRI scan is better than ultrasound at revealing details in soft tissue, such as the prostate gland. We can’t diagnose prostate cancer from an MRI image, but we can certainly use it to identify suspicious areas that warrant closer examination with a needle biopsy.

The problem, though, is that the cramped confines of an MRI chamber aren’t the ideal place to do the biopsy procedure. That’s where the new fusion-guided biopsy method comes in.

**A Fusion of MRI and Ultrasound**

Later in an outpatient setting, we insert an ultrasound probe into the patient’s rectum. As we move the probe around the prostate, the fusion software shifts the overlaid MRI image accordingly, giving us a detailed 3-D ultrasound/MRI view. We can use the fused image to guide the biopsy needles precisely to the lesion we want to sample rather than poking around and hoping we find something. It’s like using a GPS to reach your destination rather than driving without directions.
As you can see in these images, an MRI scan (B) provides much more detail of the prostate than an ultrasound scan (A) does, showing a dark area (arrow) that suggests a tumor.

When the MRI and ultrasound images are fused, we get an even clearer target to biopsy. Above (C) is the fusion-guided image we see during the biopsy procedure, with the prostate outlined in red, the suspected tumor in green and the biopsy needle in yellow.

**FEWER REPEAT PROSTATE BIOPSIES?**

The fusion-guided biopsy approach isn’t perfect. A recent study found that the fusion method missed almost as many prostate tumors as did standard biopsy. But as my Cleveland Clinic colleague, urologist J. Stephen Jones, MD, noted, the cancers that the fusion method missed were far more likely to be clinically insignificant ones.

Put another way, fusion-guided biopsy is better than the existing approach at finding prostate tumors we need to treat, while overlooking those we don’t need to worry about.

Each year in the United States, about 700,000 men with worrisome PSA levels undergo repeat prostate biopsies. The fusion-guided biopsy approach should help us reduce that number by giving us better information the first time around.

This tool should also be a boon to men who’ve been diagnosed with small, slow-growing prostate tumors and who are on active surveillance — also called watchful waiting — by possibly reducing the number of biopsies they must undergo.

Dr. Klein is Chairman of Cleveland Clinic’s Glickman Urological & Kidney Institute. He can be reached at 216.444.5591 or kleine@ccf.org.
Imagine a patient with multiple medical problems who sees several specialists, but whose condition remains undiagnosed, or who is not responding to treatment, even after careful assessment and extensive investigations — or perhaps a patient whose care needs coordination among multiple specialists and for whom the process of care has become, or may become, very prolonged and fragmented.

In such cases, physicians and patients across the nation can turn to Cleveland Clinic’s National Consultation Service for help.

The service, based in the Department of Internal Medicine at Cleveland Clinic’s main campus, offers self-referred patients and referring physicians the opportunity to access top experts among Cleveland Clinic’s more than 500 physicians within a few-day visit to Cleveland, all choreographed by a dedicated internist who “serves as the quarterback,” according to Cleveland Clinic internist Stephen Hayden, MD.

**COMPRESSIONED, COMPREHENSIVE EVALUATIONS**

Cleveland Clinic’s National Consultation Service draws patients from Ohio and surrounding states, and occasionally from as far away as Alaska and Hawaii, for a rapid-pace series of evaluations by relevant specialists.

Many regions do not have the medical resources to allow for such a comprehensive and coordinated multispecialty evaluation, so patients are willing to travel “because Cleveland Clinic has a great number of highly qualified specialists who really
know their topics in great detail, and in many cases are highly subspecialized within their specialties,” explains Dr. Hayden.

The service often helps patients with chronic conditions that require the engagement of multiple specialists, and those for whom a definitive diagnosis remains elusive, as well as patients who have highly specialized needs and rare conditions. Often patients have attempted to manage their own care which can lead to inappropriate assessments and treatment, and this service can be very helpful in redirecting treatment.

When care is not physician-coordinated, it can easily extend weeks or longer and ultimately leave a patient without concrete answers or a defined course of treatment. The service is designed to avoid this by ensuring that an internal medicine specialist is providing coordination of care.

CONSULTATION EXPERIENCE

Pre-visit: Physician-referred and self-referred patients may call the appointment number and ask for this service. The National Consultation Service team will then reach out to gather information about the reason for the visit, which the patient is asked to submit in a short description by electronic record, fax or mail or by a telephone call with a dedicated registered nurse. Physicians can also write or fax requests for consultation. The National Consultation Service physicians are happy to discuss potential referrals directly with referring physicians.

The information about the patient’s reasons for the assessment is reviewed by a physician and used to plan what consultations are likely to be beneficial and to determine whether records should be sent in advance or brought by the patient to the initial appointment. Typically, consultations are then pre-scheduled in a two- to four-day block.

Two- to four-day visit: The in-person visit begins with an in-depth (80-minute) internal medicine physician assessment. The patient then proceeds to the specialist consultations that have been scheduled in advance. If any additional tests or consultations are needed, they are scheduled at that time. The coordinating internist then receives the specialist reports, corresponds with the team via the electronic medical record and by phone when needed, and prepares a specific step-by-step treatment action plan for the patient to take home. The findings and treatment plan are discussed at the patient’s final appointment with the National Consultation Service physician during the patient's Cleveland stay. This report visit typically lasts 20 minutes to an hour to ensure the patient has a full understanding of the evaluations and recommendations.

Outcome: During the final report visit, the patient leaves with next steps clearly outlined and pertinent orders or reports to share with hometown specialists or primary care providers. While many patients self-refer, Dr. Hayden notes it is beneficial and preferable for the Consultation Service internist to coordinate with a primary care or other referring physician who will help the patient see through the treatment plan next steps as recommended by Cleveland Clinic. These may include new treatment approaches, additional procedures or laboratory test follow-up, or imaging that could not be done while the patient was in Cleveland.

Follow-up communication regarding the outcome of any follow-up tests is managed by phone and electronically. The intention is to provide a plan that can be carried out in the patient’s hometown in the long run, under the supervision of the patient’s local physicians, but some specialized testing or treatment can require additional visits to Cleveland Clinic. Referring physicians can, with the patient’s permission, access the Cleveland Clinic medical record through Epic Care Everywhere and the DrConnect® service at clevelandclinic.org/drconnect.

COORDINATION IS KEY.

“The greatest advantage for patients is coordination,” says Dr. Hayden. “If you have a patient who has a number of different medical problems, has seen numerous physicians and had a lot of tests, and hasn’t gotten the answer or a plan of care that works for him or her, we are a good resource for putting that together.”

To refer a patient to the National Consultation Service, call 216.444.2323. Patients can call 216.444.5665 (800.CCF.CARE, ext. 45665) for an appointment.
Could Musculoskeletal Ultrasound Be the Right Option for Your Patients with Sports Injuries?

Musculoskeletal ultrasound is a safe, reliable and cost-effective tool for diagnosing and treating sports injuries as well as other conditions of the musculoskeletal system.

“At Cleveland Clinic, a team of sports and exercise medicine physicians and musculoskeletal radiologists consider ultrasound a shared interest,” notes Susan Joy, MD, a Cleveland Clinic sports and exercise medicine physician and Director of the Community Sports Health Network. “We have a range of imaging choices relevant to athletic injuries or overuse, and we regard musculoskeletal ultrasound as an important tool in addition to CT, X-ray and MRI.” Dr. Joy adds, “Our goal is to use the most appropriate imaging modality for each injury.”

Dr. Joy answers some questions on musculoskeletal ultrasound and qualities that set it apart from other imaging modalities.

Q: Where does musculoskeletal ultrasound fit among other diagnostic imaging procedures?

A: Musculoskeletal ultrasound has seen significant increased use over the past 10 years. We now regard it as a front-line diagnostic tool to (1) evaluate tendons, ligaments and muscles around the ankle, knee, hip, hand, elbow and shoulder for acute injuries and other pathologies; and (2) guide therapeutic injections and aspirations of many joints, muscles, tendons and nerves.

Q: What does a musculoskeletal ultrasound involve?

A: The clinician uses a handheld transducer that is connected to an ultrasound machine. Some units are larger, on a rolling cart, and some are much smaller and easily portable, like a laptop computer. A musculoskeletal ultrasound can take place at the patient’s bedside, in the exam room, or outside the medical building in training rooms or on the sidelines. As the clinician passes the transducer over the target area, images appear in real time on the screen. To maintain good contact with the skin, the clinician or sonographer uses gel, like with any other ultrasound. Some special positioning is required to see some musculoskeletal structures well, but these positions are held briefly compared with those required for other modalities such as MRI.

Q: What are the diagnostic and treatment advantages of musculoskeletal ultrasound?

A: Musculoskeletal ultrasound is fast, low-cost and safe. It provides immediate visualization and allows for dynamic imaging. For many superficial musculoskeletal soft tissues, ultrasounds offer the most high-quality images available. An added feature of ultrasound is the ability to evaluate for active inflammation by detecting increased blood flow in soft tissues using Doppler imaging. Another benefit is the proximity of clinician and patient, which encourages their interaction.

Musculoskeletal ultrasound is very useful for procedures. Ultrasound allows for real-time visualization of the needle and the target during the procedure. Ultrasound can be used for specialized injections into joints and soft tissues as well as for aspiration of fluid from joints or soft tissues for testing. For therapeutic injections, it is crucial that the medication be placed in the correct location. Ultrasound ensures that this can happen.

Unlike CT and X-ray, musculoskeletal ultrasound does not expose patients to radiation. It costs less than MRI and has been accepted by insurance carriers as a valuable imaging modality. Musculoskeletal ultrasound is also safe for those with metal implants or stimulators who are being examined or who are in the treatment area. It is quiet and more comfortable for claustrophobic patients and obese patients.

It is important to note that musculoskeletal ultrasound cannot penetrate bone. Thus, problems involving the bones themselves and deep joint structures warrant X-ray and sometimes MRI or CT for further evaluation.
Q: How is musculoskeletal ultrasound used in treatment?

A: Injection accuracy is key. Real-time guidance allows the clinician to observe treatment progression from inserting the tip of the needle to advancing through overlying tissues to reach the target and aspirating fluid or injecting medication. With constant visualization, the clinician can change the injection approach, if necessary, to avoid unintentional damage to vessels and nerves and to determine whether accurate delivery has been achieved. Musculoskeletal ultrasound may be used post-procedure to assess healing by noting the treated tissue's organization and blood flow/inflammation status.

Q: What about safety, outcomes and patient experiences following procedures?

A: Findings from various research studies show that musculoskeletal ultrasound provides improved treatment injection accuracy, better outcomes and, compared with MRI, improved patient comfort and pain relief. Also, the addition of ultrasound guidance improves accuracy during shoulder injection procedures compared with those without the ultrasound guidance. A study comparing ultrasound guidance to fluoroscopy reported significantly less procedural time with ultrasound for the injection of the glenohumeral joint. There is evidence that musculoskeletal ultrasound reduces diagnostic errors and reduces the number of patients who need advanced imaging such as CT and MRI.

Not every rotator cuff needs an MRI, and not every injection needs an ultrasound. Our job is to determine how to best use the technology and resources we have to ensure the best possible patient care.

Dr. Joy invites clinicians to contact her at 215.518.3475 or joys@ccf.org with questions regarding the clinical use of musculoskeletal ultrasound. For questions regarding scheduling or to schedule a musculoskeletal ultrasound in radiology, please contact Michael Forney, MD, or Patricia Delzell, MD, at 216.518.3420.

What's in the future for musculoskeletal ultrasound?

“Our multidisciplinary team considers musculoskeletal ultrasound an increasingly popular technology with great potential,” says Michael C. Forney, MD, a musculoskeletal radiologist in Cleveland Clinic’s Imaging Institute. “We are working together on improving not only clinical delivery of services to our patients but also education of our staff and trainees. Our goal is to streamline use of imaging and interventions to improve diagnostic accuracy and treatment, thereby positively affecting patient outcomes.”
DEPRESSION & BIPOLAR DISORDER
Study for patients with depression and bipolar disorder

Objective: This study seeks to predict, using functional magnetic resonance imaging (fMRI), which young adults (ages 15 – 30) suffering from depression are at risk of developing bipolar disorder over the course of time.

Eligibility: Volunteers ages 15 to 30 who are unmedicated are needed. Depression patients will have the option of receiving free SSRI treatment for up to two years. Bipolar disorder patients will be followed up every three months for two years via telephone. Healthy volunteers also are needed. Those who qualify will be compensated for their participation.

Contact: 216.445.2378 or email moodres@ccf.org

ASTHMA
Alternate Day Diet (ADD)

Objective: Sponsored by the NIH Heart, Lung and Blood Institute, this study is looking at the effects of a calorie-restricted diet in asthmatics.

Eligibility: Participants must be between the ages of 18 and 65 with a diagnosis of asthma. Healthy individuals will also be enrolled for comparison. Exclusion criteria include diabetes (fasting blood sugar > 110 mg/dL), lactose intolerance, BMI > 32 kg/m², pregnancy and inability to maintain ADD diet. Low-calorie “shakes” will be provided to participants.

Contact: Megan Park | 216.445.1756

KNEE ARTHRITIS
Study of knee pain caused by osteoarthritis

Objective: This study is investigating the efficacy of Synvisc-One® (hylan G-F 20) as an adjunctive therapy for patients with knee osteoarthritis requiring physical therapy.

Eligibility: Volunteers age 21 or older are needed for FDA-approved knee joint injections followed by six to 16 physical therapy sessions.

Contact: 216.444.7722
CME Opportunity

12th Annual Dr. Roizen's Personalized, Preventive and Integrative Medicine Conference

The Future of Healthcare: Focus on Women's Health

Dec. 5-7, 2014
Encore Hotel at Wynn Las Vegas
Las Vegas, Nevada

Register at: ccfcme.org/wellness

The Cleveland Clinic Way

By Toby Cosgrove, MD, CEO and President of Cleveland Clinic

Great things happen when a medical center puts patients first. For details or to order a copy, visit clevelandclinic.org/ClevelandClinicWay.

Service Fanatics:

How to Build Superior Patient Experience the Cleveland Clinic Way

By James Merlino, MD, Chief Experience Officer, Cleveland Clinic

Understand the importance patient experience should play in every industry — using a world-class hospital as a backdrop for the lesson. Available at amazon.com, or wherever books are sold.
How Interacting with Your Patients Through Electronic Medical Records Improves Healthcare

continued from cover

Some providers have expressed concerns that sharing certain information could result in misunderstandings and a deluge of phone calls. But the experience overall has been that patients are asking good questions, and the online portal can save doctors time and improve efficiency.

A CONTINUING EVOLUTION

A key to MyChart’s success is a multidisciplinary oversight committee that provides ongoing guidance. The advisory group has served as a sounding board for suggestions and concerns. For instance, the committee received input about releasing pathology reports and physician notes. As a result, a 20-day delay is built into the release of pathology reports so patients will hear results from their physician before accessing the report online. With regard to progress notes, providers can exercise discretion with sensitive notes and omit notes pertaining to matters such as psychiatric issues.

MyChart has evolved significantly and will continue to evolve for improved transparency and communication. Active patient participation through technology is essential to successful healthcare delivery in the 21st century.

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