Diagnosing epilepsy is often an inside job for specialists who study brainwaves at Rush’s busy electroencephalogram (EEG) lab. They use EEG tests, including video monitoring, to check for abnormal electrical signals inside the brain.

In August 2012, NASA’s Voyager became the first spacecraft to venture outside our solar system. It was more than 12 billion miles from the sun, which is approximately 93 million miles from Earth.

M&M’S candy — hard on the outside and softer on the inside — is modeled after small chocolate beads that soldiers were given in their rations during the Spanish Civil War.

Ductal carcinoma in situ, a common form of noninvasive breast cancer, stays inside the milk ducts; invasive ductal carcinoma is breast cancer that has spread outside the milk ducts to surrounding breast tissue.

Swaddling a newborn in a blanket can mimic the feeling of being inside the womb, which can help soothe the baby.
Common causes of fecal incontinence

- Vaginal trauma
- Childbirth
- Surgery
- Underlying health condition (e.g., IBS, diabetes or neurological conditions)

For 17 years, Becky Brickner suffered with persistent diarrhea and fecal incontinence (the uncontrolled leakage of stool) before finding relief at Rush.

Brickner’s problems started shortly after her mother passed away. She began having symptoms of irritable bowel syndrome (IBS), which can include diarrhea and fecal incontinence. Thinking that stress and the loss of her mother were the culprits, she assumed she’d get better after a while — but she didn’t.

In fact, her problems got worse. After having a sphincterotomy (a procedure in which the sphincter muscle is cut to treat some anal and rectal conditions) at a hospital near her home, Brickner was unable to control her bowel movements.

Afraid of having an accident, Brickner ate a restricted diet and lost more than 30 pounds. “I knew that if I ate even half a meal, I’d be in the bathroom,” she says.

SEEKING HELP
Through the years, Brickner saw several doctors and tried a number of treatments. She took fiber supplements and medications, got injections and underwent physical therapy. But nothing helped. Believing there were no more options, Brickner was devastated and felt resigned to wearing adult diapers.

Then Brickner’s doctor referred her to Joanne Favuzza, DO, a colon and rectal surgeon at Rush. Favuzza recommended a sacral neuromodulation procedure that uses a device to stimulate the nerves that communicate with the colon, rectum, sphincter and pelvic floor. “Becky is a very active person, and fecal incontinence was debilitating for her,” says Favuzza. “I felt that sacral neuromodulation could help her.”

Brickner jumped at the opportunity to have the procedure and felt a renewed sense of hope.

A DRAMATIC IMPROVEMENT
Favuzza performed the procedure in two stages. During the first stage (the test stage), Favuzza inserted a thin electrode into Brickner’s upper buttock region to stimulate the nerves.

After Brickner experienced a significant improvement in her incontinence during the two weeks after the test stage, Favuzza performed the second
What causes your insides to come outside your body?

There are a number of conditions that cause your insides — including organs or waste — to come outside of your body. If you are suffering from any of the following conditions, specialists at Rush can help you find relief.

**Rectal prolapse** occurs when the rectum falls and comes through the anal opening.
- **Most common in:** Young children and the elderly
- **Causes:** Constipation, long-term diarrhea, advanced age, pregnancy, previous surgery in the area, chronic lung disease, multiple sclerosis, whooping cough
- **Treatment:** For adults, surgery is the only effective treatment. The condition may resolve itself without treatment in children and infants.

**Pelvic prolapse** is when pelvic organs fall into or out of the vagina or rectum.
- **Most common in:** Women
- **Causes:** Advanced age, multiple or difficult childbirth deliveries, injury, steroid medications, chronic lung disease
- **Treatment:** Pelvic floor exercises, vaginal creams, pessary (a device that supports pelvic floor organs), surgery (for severe prolapse)

**Urinary incontinence** is the loss of bladder control.
- **Most common in:** Older adults
- **Causes:** Weakened pelvic muscles as a result of childbirth, neurological disorders, enlarged prostate gland, cancer or noncancerous growths in the bladder, menopause, urinary tract infections
- **Treatment:** Timed voiding (urinating at specific times of day), Kegel exercises, sacral neuromodulation, injections, surgery

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**Back to Life**

For Brickner, the procedure was life-changing. About four weeks after the procedure, her symptoms were gone; she had complete control over her bowel movements. She finally had her life back.

“I can eat a meal without having to run to the bathroom,” Brickner says. “It’s been amazing.”

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**Easy as 1, 2, 3 ...**

**Wearable accountability**

GET INSIDE INFORMATION ABOUT YOUR DIET, ACTIVITY LEVEL AND SLEEP

To improve upon something, it helps to have data. That makes a fitness tracker a powerful tool in the quest for better health. These external fitness monitors offer data to gauge how your choices are affecting your well-being. Jill Boroniec, MD, a family physician at Rush University Medical Center, weighs in on three areas where getting inside information can help.

1. **Exercise.** You may think if you walk a lot for your job or to and from the train, you’re achieving the recommended 10,000 steps a day. But Boroniec says people overestimate their physical activity. “These devices allow you to quantify your current physical activity,” she says. “Having that information gives you a starting point and something to improve upon. Even if it’s a small amount — for example, adding 2,000 extra steps a day — it’s something you can measure.”

2. **Diet.** One reason dieters give up is because they aren’t seeing results right away. Keeping track of what you eat and knowing you’re sticking to your goal can help ease that need for instant gratification. “Studies show that just tracking your diet causes you to eat less because you have something that’s holding you accountable,” says Boroniec.

3. **Sleep.** Devices that track sleep usually measure movement and heart rate, both of which can indicate whether you’ve had enough deep, restful sleep. “The basic information about sleep quality provided by these trackers can help you start a discussion about sleep health with your primary care physician,” says Boroniec.

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Jill Boroniec, MD, has special interests in women’s health and chronic disease management. She purchased a fitness tracker to use during an office fitness challenge in summer 2014 and is still wearing it.
In the sci-fi movie classic Fantastic Voyage — released nearly 50 years ago — a tiny submarine travels through a person’s body to find and destroy a blood clot. Although there’s no such submarine yet, doctors routinely use technology almost as remarkable to peer inside the body to diagnose, treat and monitor diseases. Here’s just a sample of some of the new technology doctors at Rush are using:

**DIAGNOSIS**
**INNOVATION: ENDOBRONCHIAL ULTRASOUND (EBUS)**
**USES: BIOPSY FOR LUNG CANCER**
This less-invasive way to biopsy for lung cancer eliminates the need for even minor surgery. In the procedure, doctors thread a bronchoscope with an ultrasound sensor on its tip through the mouth and into the airways around the lungs. If they spot something suspicious, they can pass a hollow needle through the bronchoscope to get a sample of tissue or fluid to test for cancer cells.

**ADVANTAGES:** In a standard needle biopsy, doctors may have to go through the lung to get a sample of cells or make a cut in the neck to pass the tube through. But since EBUS goes through the mouth, it doesn’t leave a wound. EBUS can also detect smaller abnormalities than a standard biopsy, which helps with early diagnosis.

**TREATMENT**
**INNOVATION: OCELOT SYSTEM**
**USES: TREAT PERIPHERAL VASCULAR DISEASE (PVD)**
This system allows doctors to restore blood flow to leg arteries severely blocked with plaque from peripheral vascular disease (PVD). It can help people with PVD avoid invasive bypass surgery and amputations. Doctors guide a catheter with a camera and drill at its tip to the blocked artery. They then blast away the plaque and use tools, such as a balloon or stents, to open the arteries.

**ADVANTAGES:** Typically, doctors use X-ray images to maneuver catheters through arteries.

Need a tech-savvy doc? Visit [www.rush.edu/find-doctor](http://www.rush.edu/find-doctor).
The find-a-doctor search includes specialty, language, location and other key information to help you narrow your options.
But with the Ocelot System, doctors can actually see inside the artery while doing the procedure. Ocelot’s camera also helps doctors avoid puncturing arteries with the drills they need to dislodge plaque. “Our success rate at opening arteries with this system, along with our existing technologies, is more than 99 percent,” says Bulent Arslan, MD.

**TREATMENT**

**INNOVATION: NANOKNIFE**

**USES: ZAP TUMORS**

NanoKnife works by zapping tumors with bursts of electricity. “This creates microscopic holes in cancer cells, which kills them,” says Arslan, an interventional radiologist at Rush. The electricity is delivered through needle-like probes, which doctors thread through the skin (using CT or ultrasound guidance) and place in and around tumors.

**ADVANTAGES:** Though it kills cancer cells, NanoKnife leaves any nearby blood vessels and healthy tissue unharmed. As a result, it’s an option for people with tumors — such as kidney, lung, liver or bone cancers — near blood vessels and the bowel, which surgery and other treatments are likely to damage. “Patients with tumors that were once untreatable can now be helped,” says Arslan.

**FAST FACT** Rush is one of only a few Chicago-area hospitals using this technology to attack hard-to-reach tumors.

**TREATMENT**

**INNOVATION: RADIOACTIVE MICROBEADS**

**USES: TREAT LIVER CANCER**

Doctors bombard inoperable tumors in the liver with millions of miniature radioactive beads. To target the tumors, doctors guide a tiny catheter until it reaches blood vessels near the cancer. They then inject a liquid containing microbeads, which give off high doses of radiation for several days. “Since the radiation travels only a very short distance, it has no significant impact on other organs. It mostly affects just the tumor,” says Arslan.

**ADVANTAGES:** This therapy can extend the lives of people with inoperable liver tumors. And it may shrink tumors enough to make surgery or a liver transplant possible.

**MONITORING**

**INNOVATION: WIRELESS MONITORING OF PACEMAKERS AND DEFIBRILLATORS**

**USES: MONITOR ARRHYTHMIAS**

You might already know that pacemakers and defibrillators help hearts with an irregular rhythm (arrhythmia) beat normally again. But this may surprise you: Nowadays, both devices use wireless antennas to send crucial updates about patients’ heart activity and rhythms to their cardiologists. The devices also send updates about equipment status, such as when a battery is running low.

**ADVANTAGES:** Once checked only in a doctor’s office, data from these devices can now be transmitted wirelessly from patients’ homes, typically while they sleep. “I don’t need to wait three months to discover a problem at the next office visit,” says Kousik Krishnan, MD, an electrophysiologist — a doctor who specializes in irregular heart rhythms — at Rush. “I’m alerted via the Internet. If a heart rhythm changes and a blood thinner is necessary, I can prescribe it right away.”

**FAST FACT** Technology helps hips and knees too. As part of one of the world’s top joint replacement programs, orthopedic surgeons at Rush use innovative implants in the more than 3,800 hip and knee replacements they perform each year.

**MONITORING**

**INNOVATION: CARDIOMEMS HF SYSTEM**

**USES: MANAGE HEART FAILURE**

This new tool helps doctors monitor patients with heart failure. A small wireless sensor is placed in the pulmonary artery. It automatically checks the blood pressure in the artery and sends daily readings to doctors. A rise in pressure — which happens before symptoms — indicates heart failure is worsening.

**ADVANTAGES:** Traditionally, heart failure management has relied on patients reporting symptoms and related information after heart failure has already worsened. CardioMEMS allows for proactive care. “With the sensor’s early warning, doctors can adjust treatment and prevent flare-ups,” says Krishnan.

Rush’s elite interventional platform

The butterfly shape of Rush’s hospital makes it unique on the outside. And it also reflects the truly innovative care inside.

One example is Rush’s interventional platform, which places all outpatient and inpatient interventional procedures — from removing cataracts to transplanting organs — close to each other. This allows doctors to collaborate more easily across specialties. Check-in, treatment and recovery areas are also near each other so patients and their families don’t have to go to multiple locations within the hospital.

Bulent Arslan, MD, is dedicated to offering his patients the least invasive procedures possible. That means providing treatments that allow people to heal faster with less pain — and excellent outcomes.

Kousik Krishnan, MD, prides himself on using the latest and most effective technology to help patients with irregular heartbeats. Equally important is his desire to connect with every patient personally.
A weighty issue for black women
Studies have shown that because of cultural norms for body size, black women are more likely than white women to underestimate how much they weigh — sometimes by a lot.

While self-confidence is a good thing, the research suggests that those cultural norms may keep many black women from realizing the health risks associated with being overweight or obese, including heart disease and stroke. As a result, they may not take steps to shed pounds and lower their risks.

In a recent study led by Elizabeth Lynch, PhD, a preventive medicine specialist at Rush, a group of black women from a low-income Chicago neighborhood were asked to rate a series of female figures on a body image scale as “overweight,” “obese” or “too fat.” The women were also asked to rate their own bodies.

A majority of the women did not consider overweight body sizes — including their own — to actually be overweight. However, a BMI of 35 or higher was, per the cultural norm, considered by study participants to be overweight.

“That was an encouraging finding,” Lynch says. “The most health damage occurs when your BMI is 35 or above. If your BMI falls in that range and you know that’s overweight, you may be more motivated to lose weight.”

Talking to your primary care doctor is a good first step toward achieving a healthy body — and it’s something every woman should do on a regular basis.

This year, resolve to have frank conversations with your doctor about your weight and your risk of weight-related health problems.

Improving the odds for a kidney transplant
What if a simple blood test could predict whether a kidney transplant would succeed? A recent discovery by researchers at Rush and University of California San Francisco has led to the development of a blood test that may ultimately help more people get — and keep — their transplanted kidneys.

According to study co-investigator Jochen Reiser, MD, PhD, an internist at Rush, investigators found a potential predictor for a devastating form of kidney disease, focal segmental glomerulosclerosis, which can accelerate organ failure. Kidney transplant patients with this form of the disease face a high risk that their disease will come back — 20 to 40 percent after a first transplant, and up to 80 percent after a second.

Using the new blood test, doctors could monitor these patients before the transplant and predict which ones will have a recurrence of their disease.

The potential benefits of being able to treat high-risk patients before a new kidney is transplanted are many, including less risk of rejection and organ failure. And, improving success rates for first transplants could mean fewer repeat transplants, which could increase the availability of donor kidneys overall.
**RUSH UPCOMING EVENTS**

FREE CLASSES FOR YOUR HEALTH | SPRING 2015

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For a complete and up-to-date list of community wellness events at Rush, visit [www.rush.edu/events](http://www.rush.edu/events).

### Take Care of Your Heart

**Saturday, Feb. 28, 8:30 a.m. to noon**  
Searle Conference Center  
1725 W. Harrison St., Fifth Floor

Join physicians from Rush for a comprehensive program about caring for your heart, and learn about risk factors for heart disease, such as diabetes, high blood pressure and high cholesterol; conditions, including arrhythmias, heart failure and vascular disease; and the latest in research and clinical trials.

### Maybe Baby?

**Saturday, March 21, 9 to 11 a.m.**  
Ground Floor Atrium  
1650 W. Harrison St.

Join experts at Rush to help you prepare for a healthy pregnancy and birth. Presentations will cover fertility issues, healthy pregnancies and breastfeeding. Tours of the Rush Family Birth Center will be available before and after the event on a limited basis.

### Rush Generations presents: Older adult and caregiver programs

**Medication IQ and Managing Chronic Pain**  
**Friday, Feb. 20, 1 to 3 p.m.**  
Searle Conference Center, Fifth Floor (Elevator II, Professional Building), 1725 W. Harrison St.

As we age, changes in our body can affect the way medicines are absorbed and used. Join pharmacists from Rush as they discuss how to stay on track with your medications as you age, the importance of immunizations, and medications that you need to take extra caution when using. They will also discuss strategies to cope with chronic pain.

**Let’s Talk About Bone Health**  
**Wednesday, March 18, 1 to 3 p.m.**  
Searle Conference Center, Fifth Floor (Elevator II, Professional Building), 1725 W. Harrison St.

Bones provide support, movement, protection and more. At this event, experts at Rush will discuss how to maintain and maximize your bone health as you age.

### Important Legal Topics for Older Adults

**Wednesday, April 29, 1 to 3 p.m.**  
Searle Conference Center, Fifth Floor (Elevator II, Professional Building), 1725 W. Harrison St.

Join us for a discussion on the legal rights and options available to you to control decisions relating to your health care. Our discussion will include an overview of when and how to use a health care power of attorney or a living will.

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**RUSH has ongoing support groups for patients and families living with a variety of conditions. Learn more at [www.rush.edu/support-groups](http://www.rush.edu/support-groups).**

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Because space is limited, please call to reserve your seat. For more details and to register, call (888) 352-RUSH (7874). Parking in the Rush garage is available with validation.
HEALTHY MOM, HEALTHY BABY

Baby’s on the way! And while a little one’s growing inside, a lot is happening outside. Families are discussing names, organizing a nursery, and stockpiling diapers and tiny onesies. All those activities are important — not to mention fun.

Meanwhile, mom is making choices that can profoundly affect what’s happening inside the womb. “Many of the things that are healthy during pregnancy are things women can control,” Allison Chen-McCracken, MD, an OB-GYN with Rush University Medical Center, says. “And as they prepare to bring a new life into the outside world, that’s very empowering.”

Chen-McCracken offers insight into just how much certain choices matter. Here are just a few:

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<th>SAY YES TO</th>
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<tr>
<td>REDUCING STRESS</td>
<td>High levels of stress can increase the chances of having an underweight baby who is at risk for respiratory, heart, intestinal and eye problems. Although researchers are still investigating why, stress during pregnancy may also be linked to behavioral concerns during the child’s adolescence.</td>
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<tr>
<td>EXERCISING</td>
<td>Exercise helps reduce stress — and gives moms stamina for the challenge of labor and delivery. Women who maintain fitness during pregnancy typically do better during the pushing process.</td>
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<td>A FLU SHOT</td>
<td>Nature suppresses a pregnant woman’s immune system to make sure it doesn’t attack the baby. But that makes her more susceptible to infections. Expectant moms who get the flu can end up being hospitalized. Since flu season can last until May, a flu shot anytime during winter is a good idea.</td>
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<td>SMOKING</td>
<td>Among many other negatives, smoking can cause the placenta — the source of the baby’s food and oxygen during pregnancy — to separate from the womb too early, causing bleeding, which is dangerous to the mother and baby. Babies born to women who smoke are also at higher risk of having a cleft lip or cleft palate.</td>
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<td>DELI MEATS</td>
<td>If deli meats aren’t kept cold enough at a store or restaurant, they can become contaminated with a bacteria called listeria. Pregnant women are at particularly high risk for getting sick from listeria, which can cause miscarriage or stillbirth.</td>
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<td>CERTAIN FISH</td>
<td>Raw fish can carry foodborne pathogens, so take sushi off the menu. And because fetuses exposed to mercury are at risk for birth defects, avoid fish that are high in mercury. That includes king mackerel and swordfish. Meanwhile, it’s healthy to eat cooked salmon or tuna once or twice a week.</td>
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LEARN MORE

Join experts from Rush, including Allison Chen-McCracken, MD, for Maybe Baby? on March 21. See page 7 for details.