

DISCOVER RUSH



SIZING THINGS UP

- The building project under way at Rush will **double the size** of the emergency department.
- An ostrich's brain is **smaller than** its eye.
- Until 1804, silver and gold U.S. coins did not have a value on them; you could tell their worth **only by their size**.
- The **average household size** in America in 2006 was 2.6 people. The average household size in America in 1900 was 4.6 people.
- The sound of each individual's voice is **determined by the size** and shape of the vocal cords, throat, nose and mouth.
- A child's brain will grow the most during the first five years of life — reaching **90 percent of its final size**.
- Gallstones **vary in size** from as small as a grain of salt to as large as a golf ball.

SWELLING: WHAT YOUR BODY IS TRYING TO TELL YOU

MOST PEOPLE EXPERIENCE swelling at some time in their lives. Sometimes it's obvious, such as when your ankle balloons after a sprain. And sometimes it's impossible to see, like when airways swell during an asthma attack. Swelling is your immune system's way of protecting your tissues from harm. Injured tissue releases chemicals that trigger blood vessels to dilate and leak fluid into the damaged area, causing the tissue to swell and preventing damage to surrounding tissue. But sometimes this response can cause serious problems.

SWOLLEN JOINTS Take a hard fall and suddenly your wrist or knee is twice its normal size. Luckily, the swelling in most acute injuries goes away as the injury heals. But some diseases, such as rheumatoid arthritis and osteoarthritis, cause chronic joint swelling.

"At the basic level, the immune system's response is the same with each of these diseases, but the causes are different," says Clarence Parks, MD, a pediatrician and general internist at Rush University Medical Center.

Rheumatoid arthritis is an autoimmune disease that can affect the entire body; in people with rheumatoid arthritis, the immune systems attack the lining of the joints and cause swelling.

A class of drugs called disease-modifying antirheumatic drugs is used to treat rheumatoid arthritis by slowing or stopping the immune system's attack on the joints. This reduces the pain and swelling associated with the disease.

In osteoarthritis, the cartilage between the joints has worn away so that the bones rub together. This irritation causes swelling. "In both conditions the joints are stiff and swollen — but may not be visibly swollen," Parks says. "In chronic inflammation, there is continued or repetitive injury to the affected area. It can be controlled, but it's not reversible."

Treatment to control the inflammation may include nonsteroidal anti-inflammatory drugs or steroids.

In addition, physicians at Rush have pioneered advanced options such as restoring damaged cartilage to relieve joint pain, and researchers regularly investigate novel treatment options for both osteoarthritis and rheumatoid arthritis. For example, one study is enrolling participants for a trial of an investigational combination of medication for patients with early rheumatoid arthritis, meaning the condition has been diagnosed

MORE

one year ago or less. *

For information about more trials, visit www.rush.edu/clinicaltrials.



INFLAMED AIRWAYS

People with asthma can't see the inflammation that interferes with their breathing, but they are well aware of how it affects their lives.

Asthma causes chronic inflammation in the airways, the bronchial tubes that carry air into and out of the lungs. This inflammation makes the airways extremely sensitive to substances such as cigarette smoke, mold, dust and air pollution.

During an asthma attack, the airways react to such irritants by becoming even more swollen. The muscles around the bronchial tubes tighten, and cells inside the airways make more mucus. This chain reaction causes the airways to narrow, making breathing difficult.

Fast-acting inhalers, which deliver medication directly to the lungs, can help restore normal breathing by opening the airway and relaxing surrounding muscles, increasing air flow.

"If you need to use your inhaler three times in 10 to 15 minutes, or if your attack is so bad you have to lie down, get medical help right away," Parks says. Researchers don't know what causes asthma, but they think multiple factors play a role, including the following: » Having parents who have asthma » Having an inherited risk for allergies, called atopy » Having contact with certain airborne allergens, such as dust mites, in early childhood » Being exposed to certain respiratory or viral infections early in life while the immune system is still developing.

While you may not be able to control all the risk factors for asthma, you may be able to take precautions that delay or even prevent your child from developing it, such as not smoking. Maternal smoking during pregnancy is linked to wheezing in infancy, and children who are exposed to secondhand smoke in the home are also more likely to develop asthma. *

MORE

For more steps that may protect your child from asthma, visit www.rush.edu/discover.

For help managing asthma, visit the new Rush University Asthma Center, the first multidisciplinary center in the Midwest for the treatment of asthma. Call (888) 352-RUSH (7874) to learn more.



Clarence Parks, MD, practices at Lifetime Medical Associates. His clinical interests include child development, adolescent health and palliative care.

To make an appointment with a doctor at Rush, call **(888) 352-RUSH (7874)**.

Easy as 1, 2, 3 ...



Niby Mathew, MD, practices at University Family Physicians Southwest. Her areas of interest include adolescent medicine, women's health, nutrition and fitness.

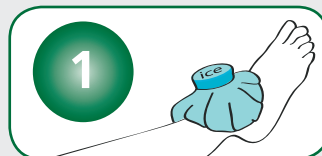
RICE small injuries

Next time you're sidelined by a minor injury, such as an ankle sprain or strained muscle, go for the RICE — rest, ice, compression and elevation. RICE therapy is the fastest way to relieve pain and reduce swelling from minor injuries.

"The goal is for the patient to take care of the injury in the first 24 to 48 hours to prevent further damage," says Niby Mathew, MD, a family physician at Rush University Medical Center.

Rest it. This may mean staying off the injured limb entirely or just avoiding exercise and certain activities, as needed, to help prevent further damage.

Always follow up with your doctor after at least two days — sooner if symptoms get worse. If you think you have a serious injury, don't try to treat it at home. See your doctor or go to the emergency room immediately.



Ice. Apply ice to the injury during the first 48 hours. The cold will restrict blood flow to the area and lessen swelling. The cold also numbs the injury, so you'll feel less pain. Ice for no more than 20 minutes at a time, every two hours, four to eight times a day. Allow at least 20 minutes between each icing session. Keep a thin towel between the ice and your skin to avoid cold injury or frostbite.



Compression. Wrap the injury with an elastic bandage to provide support. Rewrap the bandage every four hours to maintain compression and minimize swelling. When it's time to ice the injury, take off the bandage and rewrap it when you are done.

"You want the bandage to be firm but not too tight," Mathew says. "If after 10 minutes, the area below the injury is red or swollen, it's too tight; loosen the bandage."



Elevation. As much as possible, keep the injured area elevated above the level of the heart. Gravity will drain the fluid away from the injury. Elevating the injured area even a little will help with swelling.

BRAIN INJURY Your immune system reacts to brain trauma the same way it reacts to any injury — with inflammation. "But because the brain is encased in the skull, the swollen tissue can't expand, and swelling in the brain has nowhere to go," Parks says.

The swelling causes increased pressure in the brain, called intracranial pressure, which can be life-threatening. Breathing, heart rate and blood pressure can be affected as the swelling restricts blood flow to the brain and puts pressure on regions that maintain life-sustaining functions.

Physicians at Rush use a treatment called cooling therapy to bring down swelling. With this treatment, cooling blankets or other methods are used to lower the internal body temperature about nine degrees. This helps prevent further damage to the brain by reducing intracranial pressure. "Cooling the body slows the metabolic activity, decreases blood flow to the injury and reduces swelling," Parks says. *

MORE To learn which symptoms of a head injury require immediate medical attention and to find information about rehabilitation for brain injuries, visit www.rush.edu/discover.

ALLERGIC REACTIONS An allergen is anything that triggers an allergic response. Allergies usually start in childhood, but you can develop an allergy at any age to just about any substance. In some cases, allergies may go into remission only to reappear later in life, or they can get worse over time.

Here's how allergic response happens: Antibodies — blood proteins that circulate in the bloodstream and exist in most body fluids — are part of the immune system and help capture foreign intruders. If you have allergies, you have an antibody for each allergen to which you are sensitive. The antibody, called immunoglobulin E (IgE), attaches to cells that release chemicals, including histamine, which produce the symptoms of an allergic reaction. There the IgE wait for their allergen. The next time the allergic person comes in contact with the allergen, the IgE captures it, triggering the cells to release their chemicals, causing symptoms such as sneezing, coughing and swelling. The reaction often doesn't stop there. The chemicals mobilize other inflammatory cells to the site, which, in turn, produce more inflammation.

In rare cases, an allergy can cause a life-threatening complication called anaphylactic shock. This is a whole-body response to an allergen, such as an insect sting. Symptoms develop quickly and include a drop in blood pressure and swelling of the throat and tongue — cutting off the airway.

"If you know you or your child has a severe allergy, you should always carry an EpiPen and avoid the allergen at all costs," Parks says. Available by prescription, an EpiPen has medication in it called epinephrine that can open your airways. Even after using epinephrine, it's important to seek emergency medical help because one dose may not be enough. *

MORE To learn about allergy research at Rush, turn to page 8.

ACTUAL

SIZE



At Rush University Medical Center, surgeons use spinal implants that expand from the size of a raisin to the size of a grape to replace discs and pieces of bone.



Cardiologists at Rush are able to replace malfunctioning heart valves with collapsible artificial valves that are threaded through a catheter the diameter of a chopstick.



Using an incision the length of a penny, specialists at Rush are able to perform procedures for treating brain aneurysms.

TECHNOLOGICAL ADVANCES have resulted in tiny medical tools, such as miniature cameras, minuscule guide wires, microcatheters and instruments that can be collapsed to move through small incisions and then expanded to do their work inside the patient. These microscopic medical devices make possible a myriad of minimally invasive procedures that treat health problems with as little disruption to the body as possible.

"We are trying to develop techniques across all health care areas that are less invasive and therefore less traumatic to the body," says Clifford Kavinsky, MD, PhD, interventional cardiologist at Rush University Medical Center.

Because of these advances, minimally invasive procedures typically result in reduced surgical time, less discomfort, smaller incisions, reduced blood loss, shorter hospital stays, quicker recovery and fewer after-procedure complications.

Cardiovascular procedures: More options



Clifford Kavinsky, MD, PhD, serves as director of interventional therapy for structural heart disease at the Rush Center for Congenital and Structural Heart Disease.

Imagine an artificial heart valve — the size of an egg roll that is built to collapse to the size of a bean sprout — gets threaded through a catheter the diameter of a chopstick. Once in place, it expands to replace an existing heart valve that is not opening and closing properly.

This describes a new minimally invasive heart valve replacement procedure that physicians at the Rush Center for Congenital and Structural Heart Disease helped to develop while researching an alternative for elderly patients who are too ill or too frail to undergo a traditional valve replacement.

Other new minimally invasive procedures are also in the works and are in the process of being refined.

Currently, the most commonly

MINIMALLY INVASIVE PROCEDURES

SMALL TOOLS, BIG BENEFITS

The Incredible Shrinking Man may be the makings of science fiction, but incredible shrinking medical tools? Those are the result of scientific progress — the progress that makes minimally invasive medical procedures possible.

performed minimally invasive cardiovascular procedure is angioplasty. In this procedure, a catheter with a balloon attached is threaded through the femoral artery in the leg and up into a blocked artery within the heart. The balloon is then inflated to open the artery and restore normal blood flow. The balloon is removed, and a stent may be placed to hold the artery open.

"Minimally invasive techniques do not replace traditional surgery," Kavinsky says. "They add to the choices we can consider when creating a treatment plan that will be most beneficial for a patient." *

MORE

To make an appointment with a cardiologist at Rush, call **(888) 352-RUSH (7874)**.



Robotic hysterectomy can be done with five eight-millimeter incisions, each about the size of an M&M.

da Vinci

Complex surgeries, tiny incisions

Many minimally invasive hysterectomies and myomectomies (a procedure to remove fibroids) are performed at Rush with the aid of the da Vinci Surgical System. In fact, Joseph Maurice, MD, a specialist in robotic surgery at Rush, considers minimally invasive surgery using the da Vinci system to be the standard of care in his practice because it results in less blood loss, smaller scars and faster recovery times.

Use of this system is known as robotic surgery. The robot has four arms, which are guided by the surgeon, with instruments that are about the length of long-grain rice and have complete 360-degree range of movement.

With traditional hysterectomy or

myomectomy, there is a large incision — approximately the length of a piece of licorice — across the abdomen. Robotic surgery can be done with five eight-millimeter incisions, each about the size of an M&M. The da Vinci system also provides a 3-D view of the anatomy being operated on. This 3-D image appears on a screen with the internal organs magnified 10 times to give the doctor a more detailed view.

“The tools used by the da Vinci system allow the surgeon to be incredibly precise,” Maurice says. *

MORE To learn more about how minimally invasive options at Rush can benefit patients, visit www.rushstories.org.



Joseph Maurice, MD, has specialized training in laparoscopic and robotically assisted surgery.

Brain solutions: A good use of space



Michael Chen, MD, performs endovascular embolization procedures for brain and spine malformations, as well as tumors of the brain, head, neck and spine.

Minimally invasive procedures may use small tools, but the idea behind them is big.

“The concept of minimally invasive procedures is to work within the body’s existing spaces, as opposed to creating new ones,” says Michael Chen, MD, a neurointerventionalist at Rush.

For example, an endovascular alternative for treating a brain aneurysm not only preserves bone tissue, but safeguards skin and muscle as well. Advances in catheter technology — including the creation of smaller, more flexible catheters — have made it possible for doctors to treat a brain aneurysm without cutting the brain or the skull. This means less blood loss, no scarring and less brain injury.

This procedure, called endovascular embolization, requires an incision at the crease in the groin about the length of a penny that allows access to the femoral artery.

“With new catheters providing the flexibility to move through ever smaller and more twisted arteries, we have

direct access from the leg into the brain,” Chen says. The microcatheter is about half as thin as a piece of angel hair pasta and as flexible as angel hair cooked al dente. It slides along an even smaller guide wire through a sheath resembling a small coffee stirrer to place tiny coils into the brain to block the aneurysm.

Chen cautions that this technique is not for every patient, and it depends on the size and location of the aneurysm as well as the overall health of the patient. “At Rush, we have many options readily available, so a patient and his or her doctor can choose the one that is in the patient’s best interest,” he says. *

Spine surgery: Protect and preserve

The goal of most surgery is to remove disease or repair damage, but minimally invasive surgery also emphasizes preservation.

“With minimally invasive spinal surgery, we focus on preserving muscle and soft tissue, which can mean fewer infections and quicker healing time,” says Kern Singh, MD, orthopedic surgeon at Rush. “What we have learned is that the less you disrupt the natural system, the quicker and better the recovery, and the better function a patient will have after six months or a year.”

Spinal surgeons at Rush employ minimally invasive techniques in nearly every type of spinal surgery, including fusion procedures and lumbar laminectomy (the removal of bone, spurs or ligaments). They use incisions about the size of two Tic Tacs placed end to end rather than incisions the length of a banana, which are used in traditional spine surgeries. They also use small spinal implants that expand from the size of a raisin to the size of a grape to replace discs and pieces of bone that have been removed from the spine.

These implants may be the latest in spine surgery, but that does not mean minimally invasive surgery is the right choice for everyone. You have to look at each patient individually to see what is right for him or her, Singh says.

Singh and his fellow orthopedic surgeons will be seeing patients in the new orthopedic building located on the Rush campus. *

MORE Read about this new building and other projects that are part of the Rush Transformation at www.rush.edu/discover.



Kern Singh, MD, performs minimally invasive spinal surgery for patients with neck and low back problems, scoliosis, spinal cord tumors, and failed back surgeries.

RUSH IN THE NEWS



For other current clinical trials, visit www.rush.edu/clinicaltrials.

Study shows benefits of removing tongue cancer through mouth

TRANSORAL (through the mouth) laser microsurgery to remove cancer at the base of the tongue is as effective as more invasive open surgery and may improve quality of life after surgery, according to a new study by

Rush University Medical Center.

In the past, the tongue base could be safely accessed only through the neck using complex open surgical approaches that often resulted in a lot of postoperative pain, as well as

speech and swallowing impairment. With transoral surgery, surgeons use specially designed instruments to carefully remove the tumor in small pieces. This minimizes disruption to nearby tissues, reducing pain and risk of complications.

The study looked at results for 71 patients who had transoral surgery for squamous cell carcinoma of

the base of the tongue. The overall two-year survival rate was 90 percent, comparable to open surgery. The majority of patients experienced little or no pain and were able to speak and swallow much sooner and better than patients who had open surgery.

“And because the procedure is so precise, patients may require less chemotherapy or radiation therapy after surgery to kill any remaining tumor cells,” says head and neck surgeon Guy Petruzzelli, MD, PhD, the study’s lead investigator. *

CLINICAL TRIALS AT RUSH

INTESTINAL BACTERIA AND BREAST CANCER STUDY

The Section of Gastroenterology and Nutrition is conducting a study about the effect of intestinal bacteria on breast cancer. Researchers are looking for both recently diagnosed breast cancer patients and women who don’t have breast cancer to provide clinical data and stool and blood samples, as well as to undergo colonic biopsies.

Participants must meet the following criteria:

- Be a woman between 50 and 70 years of age
- Not have had menstrual periods for 12 months or longer
- Not be positive for the BRCA or Li Fraumeni gene mutations

This is a partial list of inclusion and exclusion criteria.

MORE

For more information, call Andrew Walker at **(312) 942-9203**.

FIRST HEART ATTACK STUDY

The Section of Interventional Cardiology is participating in a study evaluating the effectiveness and safety of Prochymal, an investigational therapy, to preserve or improve cardiac function when given within the seven days following a first heart attack.

The active ingredient in Prochymal is mesenchymal stem cells taken from healthy adult volunteers (not embryonic stem cells). Participants will be randomly assigned to receive either Prochymal or a placebo as a one-time intravenous infusion and will be followed for two years after treatment.

Participants must meet the following criteria:

- Be 21 to 85 years old
- Have had a first heart attack within the past seven days
- Not be allergic to pork or beef products or MRI dye

This is a partial list of inclusion and exclusion criteria.

MORE

For more information, call Amy Graf, CCRC, RD, at **(312) 942-8144**.

Rush among nation’s top hospitals

RUSH University Medical Center recently earned rankings in nine specialty areas in the July 2009 “America’s Best Hospitals” issue of *U.S. News & World Report*, which annually rates the top hospitals across the country for 16 medical specialties. Rush ranked higher than any other hospital in Illinois in orthopedics (No. 12 in the nation) and had eight additional programs in the top 50: neurology and neurosurgery, No. 12; geriatrics, No. 24; gastroenterology, No. 26; kidney disease, No. 29; heart and heart surgery, No. 30; urology, No. 31; gynecology, No. 50; and ear, nose and throat, No. 50.

Only 174 of 4,861 hospitals in the United States — about 3 percent — scored high enough this year to rank in even a single specialty. *

DISCOVER RUSH is published as a service for the Rush community.

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Information in *DISCOVER RUSH* comes from a wide range of medical experts. Models may be used in photos and illustrations. If you have any questions about your health, please contact your health care provider.
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PLEASE NOTE: All physicians featured in this publication are on the medical faculty of Rush University Medical Center. Some of the physicians featured are in private practice and, as independent practitioners, are not agents or employees of Rush University Medical Center.

RUSH UPCOMING EVENTS

FREE CLASSES FOR YOUR HEALTH | WINTER 2009



CLICK For a complete and up-to-date list of community wellness events at Rush, visit www.rush.edu/events, where you can also find handouts from previous talks.

Prevention and Treatment of Stroke

Tuesday, Nov. 17
 Assessments begin at 5 p.m.
 Talks are from 6 to 8 p.m.
 Armour Academic Center
 Rooms 985 (assessments) and
 976 (talk), 600 S. Paulina St.
 Each year more than 700,000
 Americans have a stroke. Could you
 be at risk? You can improve your
 chances for survival and lower your
 risk for disability by knowing the
 warning signs and controlling the
 risk factors. Endovascular and stroke
 neurologists at Rush will educate you
 about stroke, and nurses will provide
 a personal assessment. Screenings
 will be first come, first served and
 will take place between 5 and 6 p.m.

Hematologic Malignancies and the Role of Complementary Medicine

Wednesday, Dec. 16
 6 to 8 p.m.
 Armour Academic Center
 Room 994, 600 S. Paulina St.
 Do you or a loved one have lym-
 phoma, leukemia or myeloma?

Join experts from Rush to learn
 about the latest medical treat-
 ments and clinical studies for these
 diseases. Also learn about how
 complementary therapies, when
 used in conjunction with traditional
 therapies, address the emotional and
 spiritual effects of cancer.

The Facts About Pancreatic Cancer: Risk Factors, Diagnosis and Treatment

Wednesday, Jan. 20
 Armour Academic Center
 Room 994, 600 S. Paulina St.
 Pancreatic cancer is the fourth most
 common cancer in the United States,
 and it is important to be aware of
 the risk factors and warning signs so
 you can be diagnosed early, when
 the disease is easiest to treat. Join
 medical experts from the Coleman
 Foundation Comprehensive Clinic for
 Gastrointestinal Cancers at Rush to
 learn about risk factors, symptoms
 and the latest treatments for pancre-
 atic cancer.

Rush Generations presents: Older adult and caregiver programs

All Rush Generations programs are held at Rush University Medical Center, Searle Conference Center, 5th floor (Elevator II, Professional Office Building), 1725 W. Harrison St.

Incontinence and Pelvic Pain: A Conversation About Sensitive Issues

Wednesday, Dec. 9
 1:30 to 3 p.m.
 Incontinence and pelvic pain are
 realities for many men and women.
 Join experts at Rush for a con-
 versation about incontinence and
 pelvic pain and how those affected
 by these issues can improve their
 quality of life through pelvic floor
 exercises and other approaches.

Identifying the Causes of Chest Pain and Reducing Your Risk for Heart Attack

Wednesday, Jan. 6
 1:30 to 3 p.m.
 Chest pain is one of the most
 common reasons people seek
 emergency medical help. Experts
 from the Rush Outpatient Chest
 Pain Center will discuss this impor-
 tant topic, including the causes and
 management of chest pain.

Insomnia: Do You Have a Sleep Problem?

Wednesday, Jan. 27
 1:30 to 3 p.m.
 Insomnia gets more prevalent as
 we age, affecting half of all adults
 age 60 and older. Insufficient sleep
 affects quality of life and can cause
 serious problems, including accidents
 and mood issues. Join experts from
 Rush to learn more about the causes
 for sleep difficulties, when you
 should see a doctor for your sleep
 problem, and the role relaxation
 techniques can play in treatment.



CLICK You can get helpful health information in your e-mail inbox each month with our e-newsletter, **DISCOVER RUSH ONLINE**. Sign up today at www.rush.edu/discover.

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

E-NEWSLETTER: DISCOVER RUSH ONLINE

THINKING HIBERNATION?

Don't let winter put a freeze on your workout routine. Find ways to avoid being a cold weather couch potato in the next issue of *Discover Rush Online*. Sign up for the newsletter at www.rush.edu/discover.

WWW.RUSH.EDU

REPAIRING TINY HEARTS



Anastasios Polimenakos, MD, an assistant professor of surgery, specializes in congenital heart surgery, thoracic transplantation and ventricular-assist devices.

MENDING A BABY'S

defective heart requires the cool of a bomb squad commander and the precision of a Swiss watchmaker. If a doctor misses the target by just half a millimeter when suturing an artery, it can nick the artery and jeopardize a child's life.

"It can be catastrophic; their delicate cardiovascular systems simply can't tolerate blood loss well," says Anastasios Polimenakos, MD, a pediatric heart surgeon at the Rush Center for

Congenital and Structural Heart Disease.

Thankfully, pediatric heart surgeons and pediatric interventional cardiologists at Rush have the technology and tools — as well as the nerves of steel — to meet the challenges of treating babies with hearts as small as strawberries and blood vessels as thin as a single hair.

EARLY DETECTION, NEW APPROACHES

Recent advances in diagnostics (see sidebar) have allowed doctors to prepare and develop treatment plans to be put into action immediately after birth for conditions such as heart valve abnormalities, holes in the heart, transposed arteries and malfunctioning heart chambers.

And today, many heart defects can be treated without surgery. By using a catheter and an

image-guidance system to thread tiny instruments through blood vessels to reach the heart, interventional cardiologists can patch holes in the heart, implant artificial heart valves and use stents to widen blood vessels. Facilities like Rush's hybrid catheterization suite allow surgeons and interventional cardiologists to perform procedures separately or simultaneously, as well as switch — midprocedure, if necessary — from catheterization to open surgery without moving the patient from room to room, giving babies the best of both worlds.

SURGICAL STRATEGIES For some congenital heart conditions, open heart surgery is still the best option because of the defect's complexities. Transposition of the great arteries, for example, is a life-threatening condition in which the two major arteries leaving the heart are reversed. In newborns, surgeons must switch and reattach these major arteries as well as reconnect the coronary arteries. Using special magnifying glasses, surgeons work with microvascular tools to sever the straw-sized major arteries and suture them in the correct positions. "We then reconnect the hair-thin coronary arteries," says Polimenakos. "Precise movements are necessary to keep the vessels from kinking or twisting, which can cause the heart rate to drop and blood pressure to crash."

Fortunately, a baby's chances of surviving such a procedure are extremely high. In fact, there has been a dramatic increase in survival for children born with serious heart defects thanks to advances in diagnostics and treatment — not to mention steady hands and cool heads. *

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Options for prenatal testing

The following prenatal tests — offered by the Rush Fetal and Neonatal Medicine Program — can help identify heart defects:

- ✓ First and second trimester 3-D/4-D ultrasonography
- ✓ Fetal echocardiography
- ✓ Amniocentesis
- ✓ Maternal serum screening, also known as serum quadruple screen
- ✓ Percutaneous umbilical blood sampling

CLICK

Learn about Matthew, who was born with a congenital heart defect, and watch other patient stories at www.rushstories.org.

 **MORE ONLINE
AT WWW.RUSH.EDU**

Allergies, asthma: Findings from a novel study, conducted in part by researchers at Rush, could lead to new approaches for treating allergic reactions and asthma. The research, published in *Proceedings of the National Academy of Science*, indicates that the body's release of histamine can be stopped at the cellular level, which could provide a new target for medications.