New approaches to an epidemic

Reducing Obesity

New approaches to an epidemic
Battling Cancer Through Research

Sondra J. and Stephen R. Hardis ardently support Cleveland Clinic by contributing toward its top priorities through the Cosgrove Innovation Fund and serving as volunteer leaders. But medical research is their true passion.

They have endowed two chairs. Alok A. Khorana, MD, Director of GI Malignancies at the Taussig Cancer Institute, recently was appointed to the Hardis Chair in Oncology Research. Charis Eng, MD, PhD, Chair of the Genomic Medicine Institute and Director of the Center for Personalized Genetic Healthcare, has held the Hardis Chair in Cancer Genomic Medicine since 2008. The chair furthers her work in identifying genetic markers for breast and thyroid cancers and developing an online tool for patients to enter family medical histories, allowing for quicker risk assessment and tailored care.

“We believe in Cleveland Clinic because it’s a superb medical facility for research and patient care,” Mrs. Hardis says. “And we support work that will lead to new therapies for cancer patients.”

visit clevelandclinic.org/giving to learn more
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IN THE UNITED STATES, only 15 to 20 percent of donor lungs are accepted for transplant after a donor’s death. The rest are rejected because of complications or injuries.

That’s troubling news for the 100,000 Americans on the transplant standby list. Fortunately, the situation is about to change. Kenneth McCurry, M.D., a cardiothoracic surgeon at Cleveland Clinic, envisions a future where up to 40 percent of lungs that would have been discarded previously will be viable, thanks to a new technology called ex vivo — outside the body — lung perfusion. Think of it as "lung washing."

“It’s basically like a miniature bypass circuit, similar to what we use during open-heart surgery,” Dr. McCurry says. The ex vivo circuit cleans lungs and tests their function by pumping a special solution through the pulmonary artery, through the lungs and back out the other side. The process helps repair damage to donor lungs and buys time for surgeons to assess whether the lungs are suitable for transplant.

Dr. McCurry and his team have tested the process on 19 lungs. Similar labs around the country have done the same, and the company Vitrolife is running clinical trials with the goal of getting FDA approval by the end of 2013.

Dr. McCurry envisions other uses too. “Maybe we can make lungs less susceptible to rejection by treating them with a medication, delivering a gene to them, or altering them in some way to improve short- and long-term outcome. We’re very interested in the idea of using this as a platform to deliver other therapies.” — Chris Blose

IT TAKES a big brain to win on Jeopardy, and IBM’s artificial intelligence Watson proved its mettle by doing so in 2011. Now, IBM and Cleveland Clinic are partnering on projects that put the computer’s processing power — the equivalent of a million books per second — to the test in a medical setting.

“Watson could be the perfect sidekick for doctors,” says Neil Mehta, M.D., who is part of the team exploring Watson’s capabilities. “It’s like Captain Kirk on Star Trek. He asks the computer a question and gets answers, but in the end, he’s still making the decisions.”

To prepare for Jeopardy, Watson devoured encyclopedias, books, magazines and newspapers. At Cleveland Clinic, medical students and physicians will feed it textbooks, journals, research papers and more — giving the computer enough medical background to answer questions correctly.

Watson’s aptitude could be a real boon to time-strapped physicians as they review patient histories. In the future, the computer could search every single note entered by a nurse or surgeon about a patient, know what medications were given when, and know exactly what was happening when an incident occurred. The goal: Help doctors make better, faster decisions.

“To find all of this information from the electronic health record, if you do a thorough job, can take about 10 to 15 minutes,” Dr. Mehta notes. “We’re hoping Watson can help do it in seconds.” — Chris Blose
REGINALD KING AND HIS BROTHER, QUINN SANDERS, were far apart in age and location in 1993 when Mr. King, then 33, faced end-stage renal disease in San Francisco. Mr. Sanders, then 21 and living in Detroit, came to his rescue by offering to donate a kidney.

Mr. King, who was on the transplant waiting list in California, flew to Michigan for the procedure. He no sooner arrived than he was paged by a San Francisco hospital and told a kidney was available there. “Too late,” he thought, and proceeded as planned.

Unfortunately, his body rejected his brother’s kidney. Despite additional surgery, the kidney never functioned properly and ultimately was removed.

“So, my brother and I both lost a kidney,” he says.

Mr. King returned to California — and to dialysis.

“I was pretty traumatized,” he says. He remained on dialysis until 2009, and on the transplant list for nearly six years, until his health became precarious.

“At 49, dialysis and age had taken their toll,” he says. No longer able to work, he agreed to move with his wife, Shannon, to North Ridgeville, Ohio, where her father and stepmother lived. Shannon also researched transplant hospitals, and “Cleveland Clinic was at the top,” Mr. King says. They arrived in March 2010.

With credit for his time on California’s transplant list, he moved to the top of the list at Cleveland Clinic. But by November, he was so weak that the couple doubted he would survive. “We had resigned ourselves,” he says.

On Dec. 18, a kidney became available. This time, the transplant, performed by Charles Modlin, MD, was successful. Mr. King now has a functioning kidney, and his health is rebounding.

Unfortunately, his brother’s remaining kidney failed, but as a kidney donor, he was placed at the top of the list in Detroit. In March, Mr. Sanders, now 40, also underwent a successful transplant.

Grateful for the care they received, both brothers are determined to give back.

Although he is coping with post-transplant health issues, Mr. Sanders still ventures out to the Detroit hospital where he received his care to encourage kidney dialysis patients. And Mr. King volunteers at Cleveland Clinic’s annual Minority Men’s Health Fair.

“I speak to a lot of the men,” Mr. King says, “and they are so appreciative.” — Elaine DeRosa Lea

MIGRAINES AND cluster headaches inflict debilitating pain. They diminish a person’s productivity and drag down the quality of life. But major relief through a tiny device may be on the way.

In this new treatment, a pin-sized neuro-stimulator implanted in the skull above a patient’s upper gum is activated by placing a small, wireless remote control against the cheek. The remote control stimulates a targeted nerve bundle and blocks headache pain within five to 10 minutes.

This electrical stimulation is as promising as — but less invasive than — deep-brain stimulation, another technique used to treat cluster and migraine headaches.

Cleveland Clinic physicians Frank Papay, MD, Chair, Dermatology & Plastic Surgery Institute, and Stewart Tepper, MD, Director of Research for the Neurological Center for Pain at Cleveland Clinic, are leading a multidisciplinary team developing the new treatment. Dr. Papay has patented oral implantation of the device. Dr. Tepper has published two studies demonstrating that the approach shows promise and has also obtained FDA permission for an investigational study in both treatment and prevention. In European testing, 68 percent of patients responded positively.

“Currently, worldwide, there are very few new and preventive treatments being studied in cluster and migraine headaches,” Dr. Tepper says. “Devices with minimally invasive implantation techniques may offer new and tremendously exciting alternatives for treating these disorders.” — Elaine DeRosa Lea
The Pat Catan family name is widely known in Northeast Ohio for multiple craft centers and a wedding salon. Nationally, the name is recognized for a flourishing wholesale business. Less known is the family’s history of mental illness. But that is about to change.

“We want to raise awareness about mental health issues,” says Patrice Catan-Alberty, owner of Catan Fashions bridal store. She, her sister, Sharon Kilbane, and their families have made a major gift to Cleveland Clinic supporting mental health research and the work of Donald Malone, MD, Chairman of Cleveland Clinic’s Department of Psychiatry and Psychology. The family hopes to reduce the stigma of mental illness by promoting research and serving as examples of people who manage their disease and lead happy and productive lives.

The sisters share childhood memories of their mother coping with depression. Both Mrs. Catan-Alberty, 63, and Mrs. Kilbane’s daughter, Meghan Athey, 28, face similar challenges, but the situation has been different for each generation.

“In my mother’s day, there was not a lot they could do,” Mrs. Catan-Alberty says. “I was born with the same problem she had, which manifested when I had my third child. I was told that I had postpartum depression, yet I had it for eight years.”

She says her illness taught her how to cope with difficult emotions by building a façade to hide them. She tried to avoid being judged by people “who tag you as inferior” for not controlling depressive thoughts and feelings.

Mrs. Kilbane says of her sister’s struggles, “Would you tell someone with cancer, ‘Just think yourself out of it’?”

Eventually, Mrs. Catan-Alberty was diagnosed with OCD and given Prozac, then a new drug. It was transformative.

“My symptoms were gone! This proved to me that I had a chemical imbalance, something really no different from having heart disease, diabetes or any other illness,” she says. “My experience has made me want to create awareness for other people that it’s OK. You can get help. Your illness has nothing to do with your intellect.”

Of Mrs. Kilbane’s five children, four are on medication for mental health issues, including Mrs. Athey. “We’re all doing great,” she says.

Mrs. Athey also was diagnosed with OCD and an anxiety disorder.
“If I can help just one person, it’s worth everything I went through. I want to educate people that this is a disease.”

— Meghan Athey

but at a much younger age than her aunt. Though she recalls having anxiety attacks even in first grade, she was 12 when diagnosed. By then, there were more and better treatment options than her aunt and grandmother had, but she still coped with a lack of understanding among those around her.

“I was that little girl having a panic attack in class,” she says. “And I was a really good student, but teachers didn’t know how to deal with my anxiety.”

The family is hoping that support of Dr. Malone’s work will lead to better treatments.

“If it hadn’t been for research, and if Prozac had never been discovered, I wonder where my family would be,” Mrs. Kilbane says.

They also are hoping for better public awareness and acceptance.

“If I can help just one person, it’s worth everything I went through,” Mrs. Athey says. “I want to educate people that this is a disease. I’m a normal 28-year-old with a husband and a child, and I live a perfectly normal, happy life. This disease is a part of me, but it doesn’t define who I am.”

CAROUSEL FOR KIDS
Puts the ‘Fun’ in Fundraising

A horse of a different color will help further pediatric research at Cleveland Clinic Children’s Hospital.

Actually, three carousel horses cantered to Cleveland in a new collaboration between the hospital and Cedar Point amusement park. Hospital patients painted the horses, which will be auctioned off. The goal is to raise funds for the new Children’s Hospital Pediatric Research Center, which studies childhood diseases and works toward treatment breakthroughs.

“Our team cares for the youngest, most fragile children with the mission of providing hope and healing to patients and families,” says Giovanni Piedimonte, MD, Chair of the Pediatric Institute & Children’s Hospital. “Our ultimate goal is to return kids to fun, and Cedar Point is the ideal partner because fun is their foundation. This campaign allows every single person the chance to help our patients and have fun in the process.”

The first horse was to go to the highest bidder on May 3 at the annual HeartThrob Ball, an elegant gala benefiting the Children’s Hospital.

“Our participation in the HeartThrob Ball over the past several years really opened our eyes to the health victories so many children have won with the assistance of the Children’s Hospital,” says Cedar Point Vice President and General Manager John Hildebrandt. “We want to help create more victories.”

Another horse will be on display at Cleveland Clinic’s main campus and a third on the main midway at Cedar Point amusement park.

Cedar Point will post information on the program at the park at www.carouselsforkids.com. In July, 10 cents per carousel ticket rider will be donated to Children’s Hospital. In addition, raffle tickets for a brand-new car will be sold at three park locations and online from May–July, and a drawing will be held Aug. 1. Proceeds will benefit the hospital.

“With the support of Cedar Point, the Children’s Hospital will continue to transform lives, not only by providing young patients with the most innovative treatments available, but also by giving families hope,” Dr. Piedimonte says.
HONORING SON, HELPING KIDS

Linda and Rich White

For 20 years, the holidays have been a little brighter for patients in the Hematology & Oncology Department at Cleveland Clinic Children’s Hospital because of Linda and Richard White. They throw a Christmas party in memory of their son, Richie, who was 4 years old when he passed away from a brain tumor on Sept. 3, 1991.

The Whites understand the challenges of caring for a chronically ill child: Richie had 18 months of surgeries, chemotherapy, radiation and radiotherapy. When he passed away, Mrs. White chose to help other children. “I wanted to make the kids smile,” she says.

The couple, their children Christina, 23, and Nicholas, 19, and Mrs. White’s brother, John Voso, and his family established the Richie White Pediatric Family Fund to support the event. The foundation raises about $24,000 each year.

Throwing the party is “a blast,” Mrs. White says. Family and friends join her in wrapping presents. Her brother-in-law plays Santa at the party, where parents are as elated as their children. “When your sick child smiles for five minutes, it makes your whole day,” she says.

Recently, the family established a personal fundraising page to help support their event, which 67 children enjoyed in 2012. “We used to have around 90,” Mrs. White says. “I attribute this smaller number to better treatment. When kids are fixed up and aren’t there for the party, then that’s good for them! My husband says he’d like a list so small that we could drive the gifts to their homes.”

For more on the Whites’ efforts, visit: http://ccf.convio.net/goto/richiewhitefund.

To create a Personal Cleveland Clinic Fundraising page, visit giving.ccf.org/personalfundraising or call 216.448.0667.

A GIFT FROM WITHIN

Daniel I. Sessler, MD, and Ximena Valdes, MD

Cleveland Clinic’s dedication to clinical research has inspired one of its top physicians to make a substantial philanthropic gift.

Daniel Sessler, MD, and his wife of 25 years, Ximena Valdes, MD, have made a bequest supporting clinical research in the Anesthesiology Institute. Dr. Sessler is a professor at the Cleveland Clinic Lerner College of Medicine and Chair of the Department of Outcomes Research; Dr. Valdes recently retired from University Hospitals in Cleveland.

“We are making this gift because Cleveland Clinic is one of the world’s best healthcare organizations,” Dr. Sessler says. The couple notes that Cleveland Clinic “has a special interest in providing high-quality healthcare at affordable prices and in clinical research that can immediately benefit patients.”

As holder of the Michael J. Cudahy Endowed Chair, which supports his work, Dr. Sessler says he understands how crucial philanthropy is to advancing research.

Dr. Sessler, formerly Vice Dean for Research and Associate Vice President for Health Affairs at the University of Louisville in Kentucky, was recruited by Cleveland Clinic in 2005 to establish Outcomes Research. Under his leadership, the department has grown to a staff of nearly 50, who coordinate more than 75 simultaneous studies, including a dozen large, multicenter outcome trials. The department also is the administrative center and largest site for the Outcomes Research Consortium, which was founded by Dr. Sessler and is the world’s largest clinical research organization for anesthesia.

Dr. Sessler says he is grateful for his opportunities at Cleveland Clinic. “It is a great environment for clinical research, with large numbers of patients, high-quality electronic records, collaborative clinicians and outstanding research support.”

From left, Nicholas, Linda, Christina and Richard White
Inside This Section

MAKE TAX LAW CHANGES WORK FOR YOU FINANCIAL AND ESTATE PLANNING

The American Taxpayer Relief Act of 2012 has brought clarity to tax law and new opportunities for smart gift planning. Learn how these changes affect you and how you can leave a legacy through financial and estate planning.

Musician Jerome Levine of North Palm Beach, Fla., knows a thing or two about timing. He teaches clarinet and saxophone and, over the years, has performed with Liberace, Johnny Mathis, Robert Goulet, Eddie Fisher and Harry Belafonte. At age 9, he even had a dance lesson with Gene Kelly.

In 2010, he says, his timing was perfect. That’s when his wife, Evelyn, faced a life-threatening aortic valve disease that brought them to Cleveland Clinic in Ohio. Before going to Cleveland, several doctors had told them that “pills were the best they could do,” Mr. Levine says. “I had the feeling she wouldn’t live more than a few years.”

Together for 66 years and married for 62, the couple wanted not just more time together but high-quality time. They came to Cleveland Clinic in search of answers. But after hearing again about the risks of surgery, Mrs. Levine found herself becoming discouraged and thinking of going home. Her husband urged her to persist.

“She wanted to leave on Thursday, but we had only one more appointment on Friday,” Mr. Levine says. “I said to her, ‘Just one more doctor; one more night in the hotel won’t matter.’”

As it turned out, one more doctor and one more night mattered quite a bit. The couple met with Samir Kapadia, MD, Director of the Sones Cardiac Catheterization Laboratories, who described a then-new procedure in which he would replace Mrs. Levine’s valve with catheterization rather than the traditional surgery deemed too risky for her. The Levines quickly consented, and the procedure was a success.

Today, Mrs. Levine, who was an acrobat and ballerina at Radio City Music Hall when she met her husband, says she is feeling fine and is back to taking long walks and exercising. “She can do 99 percent of what she did before,” says Mr. Levine.

In gratitude, the couple has bequeathed their estate to Cleveland Clinic to support heart and vascular research in honor of Dr. Kapadia.

“We are so grateful to Dr. Kapadia. Evelyn is still here!” Mr. Levine says, and then jokes, “Now when Evelyn disagrees with me, I tell her that I’m always right. Since Cleveland Clinic, she’s finally beginning to believe it. Almost.” — Elaine DeRosa Lea
The estate tax exemption was much debated in the ATRA negotiations. In the end, it was decided that the current estate tax exemption of $5.25 million would remain in place. The estate tax rate increased from 35 percent to 40 percent on amounts exceeding $5.25 million. Other features include:

• Gift, estate and generation-skipping tax will continue to operate as a unified system, with taxable transfers at death added to taxable lifetime transfers to determine the total amount subject to tax.

• The new law also continues the “portability” provision, which allows a surviving spouse to benefit from any portion of the estate tax exemption not used by the spouse who passed away, making the combined estate tax exemption as high as $10.5 million. To qualify for the portability provision, an estate tax return must be filed for the deceased spouse.

FINANCIAL AND ESTATE PLANNING can be your greatest gifts to your family and your ultimate expression of what has mattered most to you during your lifetime. If you have been waiting to plan your estate or make a gift because of questions about taxes, then wait no more.

The American Taxpayer Relief Act of 2012 (ATRA) has brought a degree of certainty to our tax law, as well as new opportunities, especially for those with charitable planning goals. Here are some ways that ATRA can benefit you, your family and Cleveland Clinic.

Estate Tax

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Taxpayers with philanthropic estate planning objectives now can move ahead confidently. The tax savings of a charitable bequest made by someone with an estate exceeding the exemption are quite clear. 

Example: Sara’s estate of $7 million making a $1 million bequest to Cleveland Clinic would result in estate tax savings of $400,000 for her heirs, or $50,000 more than a similar bequest would have yielded in 2012 (35 percent of $1 million in 2012 versus 40 percent of $1 million in 2013).

As in past years, making an estate gift of retirement plan assets while leaving other assets to heirs will save on both estate and income taxes. ATRA’s new, higher-income tax rate makes it even more beneficial. Cleveland Clinic, as a charitable organization, does not have to pay estate or income tax, whereas noncharitable beneficiaries may have to recognize income and pay federal estate and income tax on any inherited bequest of retirement plan assets.
Example: Directing a bequest of a retirement plan asset to a charity such as Cleveland Clinic while leaving other assets to heirs may result in further tax savings for the heirs. In addition to the tax savings of $400,000 (40 percent of $1 million in the previous example), the heirs could save up to an additional $237,600 if the remaining $600,000 is taxed at the new 39.6 percent higher-income tax rate.

Higher Tax Rates, Larger Savings
Income tax rates for most taxpayers remain the same. However, single taxpayers with income over $400,000, and married taxpayers with income over $450,000, will see their tax rates increase from 35 percent to 39.6 percent in 2013. This increase will produce additional tax savings for higher-income taxpayers who have charitable goals.

Example: Joe Smith, single, makes a gift of $100,000 to Cleveland Clinic each year. His adjusted gross income (AGI) for 2012 was $750,000, and he expects the same income for 2013. In 2012, when the maximum tax rate was 35 percent, his gift produced tax savings of $35,000. This year, his $100,000 gift will result in tax savings of $39,600 — an additional $4,600.

(Caveat: ATRA also reintroduces the gradual phase-out of certain itemized deductions for higher-income taxpayers. It is wise to consult with a financial adviser to see if this will affect you.)

Higher Capital Gains Rates Offer More Tax Savings
Gifts of long-term appreciated stock will continue to offer tax savings by avoiding the capital gains tax. ATRA continues the capital gains tax rates at 2012 levels for most tax brackets; however, under the new law, the maximum rate increases from 15 percent to 20 percent for those in the new 39.6 percent tax bracket. Additionally, a provision of the Affordable Care Act levies a 3.8 percent tax on certain investment income for single taxpayers whose AGI exceeds $200,000 and for married couples making more than $250,000, which could boost the capital gains rate to a maximum 23.8 percent.

Example: Doug, single, with AGI of $650,000 in 2013, owns stock worth $100,000 that he purchased five years ago for $20,000. He decides to transfer this stock directly to Cleveland Clinic rather than selling it and making a gift of the proceeds.

He is entitled to a charitable deduction for the full current value of $100,000, which at his 39.6 percent tax rate will save him as much as $39,600 in taxes. Also, he will avoid paying capital gains tax on any of the $80,000 increase in value. If he had sold the stock and made a gift to Cleveland Clinic with the proceeds, he would have been taxed $19,040 (23.8 percent on the gain of $80,000).

The net tax benefit of Doug’s gift of appreciated stock is $11,640 more than it would have been in 2012. And Cleveland Clinic also will benefit from a larger gift.

Cleveland Clinic’s success is sustained by generous supporters, and ATRA provides an opportunity to extend the reach of their gifts.

### ATRA CHANGES AT A GLANCE

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<th>New, Higher-Income Tax Bracket</th>
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<td>Rate: 39.6% for single income over $400,000, married filing jointly over $450,000</td>
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<td>Tax rate increases from 35% to 40% on amounts exceeding $5.25 million</td>
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<th>IRA Rollover</th>
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<tr>
<td>Benefit: Direct transfers from an IRA to charity will not be included in income</td>
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### ROLLOVER IS BACK
The popular IRA charitable rollover option is available again for 2013. This provision allows taxpayers to use IRA funds to make charitable gifts without having to include those distributions as taxable income. You may qualify for this benefit if:

- You are age 70½ or older at the time of the gift.
- The transfer is made directly from the IRA account to Cleveland Clinic.
- The maximum amount that can be transferred tax free is $100,000 per taxpayer, and the gift may not be used to establish a life income gift, such as a gift annuity or charitable remainder trust.
Pyramid Legacy Society

You can plan for your future while supporting Cleveland Clinic through a charitable gift. If you have included Cleveland Clinic in your estate plans, please let us know! We would love to welcome you as a member of our Pyramid Legacy Society.

To learn more, request a copy of our complimentary Pyramid Legacy Society brochure.

If you wish to discuss, in confidence, a plan that best suits your family and charitable needs, please call Cleveland Clinic’s gift planning professionals at 216.444.1245. You also may send an email request to giftplanning@ccf.org, or visit us online at clevelandclinic.org/giving. We look forward to assisting you.

Allied Partners in Philanthropy (APP) is a society established by Cleveland Clinic to thank and recognize allied professionals (attorneys, accountants, bankers, brokers, financial planners, etc.) who have helped facilitate a charitable gift to Cleveland Clinic. If you have assisted your client(s) with a gift to Cleveland Clinic, please contact Nancy McCann at 216.445.8980 or send an email to giftplanning@ccf.org.

2013 Partners
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Matthew J. Rosner, Capital Planners

Meet Our Team

CLEVELAND CLINIC IS GRATEFUL FOR ALL GIFTS.

We would be glad to work with you and your advisers to arrange a gift plan that best suits your objectives. To discuss your charitable goals in confidence with one of our gift planning professionals, please call 216.444.1245 or 800.223.2273, ext. 41245, and ask for Gift Planning, or send an email to giftplanning@ccf.org.

The Gift Planning team is part of Cleveland Clinic’s Philanthropy Institute.

FROM LEFT: ANNE CORRETTE; NELSON J. WITTMENYER JR., ESQ., INSTITUTE VICE CHAIR; NANCY McCANN; KATHERINE COLLIN, ESQ.
Epidemic. Catastrophic. Disastrous. These are the words health experts use to describe escalating obesity rates in the United States. And there’s good reason for alarm, going way beyond the numbers on a scale.

“It’s not the obesity that kills you,” says Cleveland Clinic researcher John Kirwan, PhD. “It’s the diseases that emanate from it.” Obesity is a major contributor to type 2 diabetes, nonalcoholic fatty liver disease, some forms of cancer, cardiovascular disease, and chronic pain in the back and joints.

“Left unchecked, obesity’s effects on health, healthcare costs and our productivity as a nation could become catastrophic,” wrote the authors of a 2012 Institute of Medicine report on the topic.

U.S. obesity rates are double what they were in the 1960s: Two-thirds of adults and one-third of children are overweight or obese, according to national statistics. The country needs answers.
That’s why Cleveland Clinic experts are fighting back in every arena. In laboratories, they explore what happens within our body’s cells when we accumulate too much fat. In patient settings, they help people lose weight through behavior changes, medication and surgery. And in the community — at schools and work sites — they spread the knowledge they’ve gained through years of study and innovation.

**RESEARCH AND REPAIR**

Understanding the obesity epidemic starts at the molecular level, with inflammation playing a leading role.

The body responds to excessive weight gain the same way it responds to infection, by triggering inflammation. On a short-term basis, inflammation is good when it’s fighting infection; long-term, however, it greatly increases the risk of chronic diseases such as diabetes, cardiovascular disease and fatty liver disease.

In an overweight person with cardiovascular disease, for example, sensors in the body trigger inflammatory cells and lipids that can build up in the arteries and form plaques, blocking blood flow. “That’s how people get stroke and heart attack,” says Cleveland Clinic immunologist Xiaoxia Li, PhD.

In laboratory studies, Dr. Li has found a novel way to block the inflammatory response in both cardiovascular disease and fatty liver disease: When her team deletes a gene within a sensor’s pathway, fat accumulation in the liver is wiped out.

The research is promising. Dr. Li hopes that eventually it could lead to developing drugs that block the body’s sensors and offer a new way to tackle the negative effects of obesity.

The work of Dr. Kirwan, who heads a team in the Lerner Research Institute that conducts clinical translational research in aging, obesity and diabetes, also offers new hope. Dr. Kirwan is specifically interested in reducing diabetes along with obesity. He and his Cleveland Clinic colleagues are seeing great success through bariatric surgery, which reduces or bypasses parts of the stomach so patients can’t consume as much food. About 500 patients per year come to Cleveland Clinic to have the surgery for weight loss.

In 2012 in *The New England Journal of Medicine*, the researchers made international news with the results of their STAMPEDE study (Surgical Therapy and Medications Potentially Eradicate Diabetes Efficiently). Along with losing weight, a significant number of patients with diabetes were able to reduce or eliminate their use of diabetes medications after surgery. Many patients also were able to reduce use of cardiovascular medications.

Dr. Kirwan now is zeroing in on how bypass surgery has such an immediate effect on diabetes. He’s studying the effects of certain proteins, GIP and GLP-1, that are produced in the duodenum, the upper part of the stomach that’s bypassed in surgery. In testing, some drugs block these proteins and help improve blood sugar regulation, but they’re expensive and require injections. Dr. Kirwan’s group is working to identify, then test, other proteins that affect the same pathway and may be easier to develop — and safer to use.

Ultimately, says Dr. Kirwan, these studies may lead to a less-invasive alternative to bypass surgery for overweight people with diabetes.

Vincent Hascall, PhD, of the Lerner Research Institute’s Department of Biomedical Engineering, also is investigating new approaches to obesity. Like Dr. Li, he is examining obesity’s ties to inflammation. He came to obesity research through his career-long focus on a large polymer of sugar units called hyaluronic acid, or hyaluronan. When stressed, either through exposure to a virus or through high sugar levels, certain cells produce hyaluronan in a form that acts like a beacon, telling the body there’s a problem and recruiting inflammatory cells to the area to deal with the stressed tissue.

Dr. Hascall is especially concerned about overweight children who consume sweets and sugary drinks because his group found a reaction in an unexpected part of the body: bone marrow. Stem cells within bone marrow usually divide to become new bone cells and new stem cells. But within a high-glucose environment, the stem cells divide to become fat cells instead.

**STARTING YOUNG**

Dr. Hascall’s surprising results make Cleveland Clinic’s efforts to stem childhood obesity even more critical. With the striking rise in childhood obesity in

The research is promising. It could lead to developing drugs that block the body’s sensors and offer a new way to tackle the negative effects of obesity.
the past 30 years, healthcare providers have begun to see more children with cardiovascular disease and type 2 diabetes, the latter a disease usually diagnosed after age 40.

Cleveland Clinic is taking a multipronged approach to reach schoolchildren and help them maintain healthy weight through physical activity and proper eating, says Persis Sosiak, MPH, BSN, RN, Director of Public Health and Research at Cleveland Clinic. Its umbrella program, 5 to Go!, uses a countdown checklist (see “Countdown to Health,” p.14) to promote healthy eating, exercise and limits on electronic screen time, plus an additional concept: giving compliments. “Some very astute pediatricians recognized that bullying is involved with obesity as well as being underweight,” Ms. Sosiak says, “so we added the mental health component.”

The program launched in 2008, and today all 16 of Cleveland’s inner-ring school districts and some charter schools are participating. During the 2011–2012 school year, First Ring school districts assessed the body mass index of almost 16,000 children and sent each child’s family a letter. Without offering judgment, the letter explained what BMI means and provided a list of nutrition and fitness websites, local recreation and medical centers, and other resources where parents could get help. That school year, 35 percent of children in grades K, 3, 5 and 9 were found to be overweight or obese. Reassessments began this school year and will provide the first opportunity to evaluate the program’s impact. “With the BMI data provided by Cleveland Clinic, we can monitor progress,” says Marty Motsco, Facilitator, First Ring Superintendents’ Collaborative. “We’re hoping fewer students will be in the higher ends of BMI.”

Cleveland Clinic staff also advocated for a 2010 Ohio state law, the Healthy Choices for Healthy Children Act, to encourage these BMI assessments, although Ms. Sosiak says the final law was weakened to make the BMI assessments optional. All of Cleveland Clinic’s school partners, however, have embraced the BMI assessments on their own.

The schools look at student wellness differently now, Ms. Motsco says. “The kids are with us most of the day. It’s imperative that we address these issues. The health of our children is important. It definitely affects academic achievement.” Along with the BMI assessments, the First Ring schools have responded by boosting physical activity outside of gym class. Many schools have instituted running or walking clubs, and they fit in activity bursts between classes. “Some schools have prohibited soft drinks, and many no longer allow treats and candy as good behavior incentives,” she adds. “The focus is on better nutritional practices throughout the day, not just in the cafeteria.” The First Ring wellness initiative is supported

Lessons Learned from Long-Term Losers

The National Weight Control Registry follows 10,000 people who have maintained long-term weight loss. People who have lost 30 pounds or more and kept it off report several things in common, including a low-calorie, low-fat diet and high levels of activity:

90 percent exercise, on average, about one hour per day.

78 percent eat breakfast every day.

75 percent weigh themselves at least once a week.

62 percent watch fewer than 10 hours of TV per week.
by the Cleveland Foundation and George Gund Foundation.

To help students understand the role of nutrition and fitness, Cleveland Clinic staff developed age-appropriate curricula. For example, beyond nutrition, older children also learn techniques to reduce stress and improve sleep. In a pre- and post-test, the students’ nutrition knowledge improved.

The best part: The programs meet state education standards, so they can be incorporated within existing curricula, a key factor for fitting into busy school days.

**WORKPLACE WELLNESS**

A healthy lifestyle is a lifelong pursuit, and adults need as much support as children do. So Cleveland Clinic has taken its programs to the workplace — starting with its own employees and expanding into other companies.

“We spend one-third or more of our lives working,” says Mladen Golubić, MD, PhD, Medical Director of Cleveland Clinic’s Center for Lifestyle Medicine, so a focus on the workplace makes great sense. Cleveland Clinic has been tackling nutrition, stress and exercise for its employees with gusto since Michael Roizen, MD, became Chief Wellness Officer in 2007. Employees have access to the gym and 50 weekly yoga classes — yoga instructors even visit nursing staff on their floors during breaks. Shape Up & Go! is an online program in which teams compete in a variety of categories related to diet and exercise, and report their progress. Cafeteria and vending machines offer many healthy options. Foods are labeled, healthy foods are easier to find, and sugary sodas and candy bars are long gone.

“We try to make it easy to make healthy choices,” says Dr. Golubić.

What’s healthy for people is healthy for the bottom line too, he says. For every one-point increase in an employee’s BMI, a company spends an extra $121 on healthcare. As America’s waistline expands, those costs become substantial. On the flip side, for every $1 spent on wellness programs, medical costs drop by more than $3, and absentee costs fall by more than $2 a day, according to a 2010 analysis by Harvard researchers.

Although healthcare costs have risen around the country, Cleveland Clinic has seen a drop for its employees. “That’s something that everybody pays attention to,” Dr. Golubić says.

To extend these results elsewhere, Cleveland Clinic Wellness Enterprise offers programs on stress reduction, weight loss and tobacco cessation that are customized to each company’s culture. General Electric recently completed the Stress Free Now program with about 500 employees. The city of Strongsville, Ohio, a suburb of Cleveland, also recently signed on and now offers Go! Foods — based on the principles of the Mediterranean diet — in its recreation centers as well as subsidized healthy lunches for employees.

Overall, Cleveland Clinic Wellness Enterprise has performed at least 30 corporate wellness assessments, which involve an interview with the CEO, focus groups with all levels of staff and a review of the company’s health plan. The aim in each case, says Jennifer Hunter, LISW-S, Director, EAP Wellness at Cleveland Clinic, is to develop a program that employees can embrace. “When employers choose to just bring in a wellness program that doesn’t speak to the culture and logistics of the organization, it rarely works,” she says.

The structure has to be in place to help employees make the right choices, Dr. Golubić adds. The worksite culture has to change so employees know it’s OK to take 10 minutes to close their eyes and focus on breathing. It’s OK during lunch to put on sneakers and go for a walk. Being a productive worker doesn’t mean sitting at a computer and eating a sandwich while talking on the phone.

Cleveland Clinic Wellness also has a six-month eCoaching program, which offers tailored email support to individuals...
who want to lose weight or stop smoking. In a pilot study of the program, developed by Dr. Roizen, who holds the Joseph T. Gorman and Family Endowed Chair, 50 people lost an average of 26 pounds in the first 12 weeks.

Says Ms. Hunter: “People who hadn’t done well with Weight Watchers and Curves are being successful with the eCoaching platform.”

Muriel Alexandrowski is one such success story. “I went from a plus size to a size 10,” says Mrs. Alexandrowski, who devoted herself to the program after her husband of more than 40 years, Joseph, was diagnosed with early-stage Alzheimer’s disease. “I realized that I would have to be strong and that I would need to get younger, not older, to take care of him.”

Mrs. Alexandrowski was so pleased after losing 40 pounds, lowering her cholesterol and eliminating her diabetes risk that she became a supporter of the Wellness Institute. “I want my gift to help more people change their lives as I’ve changed mine,” she says. “I will never, ever, go back to how I was.”

EXPANDING TREATMENT OPTIONS

Many of the patients who come to see Derrick Cetin, DO, or Karen Cooper, DO, bariatric medicine specialists at Cleveland Clinic’s Bariatric & Metabolic Institute, have tried everything to lose weight. They may be 200 pounds or more overweight and think that surgery is their only option. The clinicians support patients with diet and activity advice, medications and shared appointments so they can either lose weight without surgery or prepare for surgery and maintain the weight loss that follows.

About 30 percent of Dr. Cetin’s patients see him for nonsurgical weight loss. He starts with a manageable goal of 10 percent weight loss. “If a person who is 200 pounds can lose 20 pounds in the first six months, that’s a good goal,” he says. With just a 10 percent drop, patients experience improvements in type 2 diabetes, sleep apnea and blood pressure.

Dr. Cetin begins with behavioral changes. By cutting out sugar-sweetened drinks, a person can lose four or five pounds in a month. He also encourages patients to eat more protein and cut out white flour and foods containing high-fructose corn syrup, which just make people crave more of the same.

“I try to get patients to mimic the behaviors of people on the National Weight Control Registry,” Dr. Cetin says (see “Lessons Learned from Long-Term Losers,” p.13). That includes exercising a minimum of 60 minutes a day. He’s a big fan of online tools such as MyPyramid.gov, Myfitnesspal.com and Bodybugg.com to track eating and exercise. He also asks his patients to visit a dietitian between appointments with him so they have frequent check-ins. “There’s got to be accountability,” he says.

Medication can help, but he rarely starts a patient’s weight loss with it. Instead, he’ll prescribe weight-loss medication to keep patients at maintenance weight. Once a patient loses about 10 percent of his or her body weight, metabolism drops by about 20 percent, and the input to the brain stimulates the appetite, making the extra pounds much harder to lose. That may be the time to try medications to support the patient’s effort to eat less, he says.

Sometimes, the best answers are friendly competition and understanding support. Many patients find this in the form of shared appointments, in which five to 10 patients meet with their doctor along with a behaviorist or dietitian. As each member’s vitals and measurements are checked one-on-one, the rest of the group discusses how they’ve been doing, what’s working well and what isn’t.

For patients who have bariatric surgery, the shared appointments are extremely helpful, Dr. Cooper says. “The supportive atmosphere fosters friendship and good competition. It gives patients a place where they have a voice and are not alone.”

These comprehensive programs to support individuals’ weight loss in the doctor’s office, at work and in the community, along with research on obesity, may one day make the panic over America’s expanding waistline and the medical problems that result a thing of the past.

For every $1 spent on wellness programs, medical costs drop by more than $3, and absentee costs fall by more than $2 a day.
ABDOMINAL AORTIC ANEURYSMS are diagnosed in 1.3 million Americans every year. Men over age 65 are at the greatest risk for this life-threatening condition. With nearly 30 percent of the U.S. population joining the ranks of senior citizens in coming decades, and with increases in hypertension and heart disease, experts predict a dramatic rise in cases.

Abdominal aortic aneurysms form when the aortic walls lose their flexibility. Elastin — the rubber-like protein fibers that restore vessels’ original shape after they expand with blood flow — breaks down over time. Lost flexibility leads to gradual vessel weakening. Ultimately, they rupture.

Advances in imaging and patient screening have helped doctors detect abdominal aortic aneurysms much earlier. However, even with early diagnosis, treatment options are limited. Usually, doctors monitor the aneurysm for five years or more until it grows large enough to rupture. Then, the treatment is minimally invasive or open surgery. Both options often are inadvisable for frail elderly patients.

Recent research suggests that certain drugs might slow an aneurysm’s growth by inhibiting the breakdown of elastin. But once tissue damage occurs, a vessel cannot be restored to its original state because adult and diseased cells have difficulty creating elastin.

My team and I are working to improve this rather bleak picture. We are trying to identify biomolecules that stimulate cells to regenerate lost elastin. We then intend to introduce these biomolecules into living vessels affected by aneurysms. We hope this approach not only will slow the breakdown of elastin but also reverse existing damage.

We are moving beyond conventional tissue engineering techniques and materials, becoming the first in our field of research to pursue therapies involving nanomedicine technology. We are developing new biomaterials to deliver cells or drugs to tissues in a targeted, controllable, predictable way. This could reduce adverse side effects. Our techniques will significantly increase elastin production within abdominal aortic aneurysms and protect these newly generated structures from breaking down.

This approach is highly innovative because we are focusing on regenerative repair. What we discover will greatly benefit the development of new, nonsurgical treatment strategies to stabilize or reverse existing abdominal aortic aneurysms. We aim to return the vessel to a healthy state and provide an effective treatment for high-risk elderly patients who are poor candidates for surgery.

Philanthropic support would help us move forward with our research, which has the potential not only to save lives through preventing the rupture of abdominal blood vessels but also to restore the health of those vessels. Our work could lead to improved longevity and better quality of life for millions of people.

Dr. Ramamurthi is on the staff of the Department of Biomedical Engineering, Cleveland Clinic Lerner Research Institute.
Using new imaging technology, Cleveland Clinic researchers are able to analyze a functioning brain and evaluate connectivity between brain regions that may be abnormal in people with mental health disorders. Amit Anand, MD, Vice Chair of Research at Cleveland Clinic’s Center for Behavioral Health, and his team were the first to report these abnormalities in brain areas that regulate and generate mood in people with unmedicated major depression and bipolar disorder. They are building on their findings, seeking to identify markers that can predict which teens and young adults with depression are likely to develop bipolar disorder.

“Our objective is to identify robust and consistent brain imaging markers for use in diagnosis, as well as in predicting and monitoring treatment response,” Dr. Anand says. “Early identification is key to effective early intervention.”
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